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DOMESTIC ENGINEERING

Plumbing and Heating Contracting and Merchandising

Alert Dealer Is Selling More Oil Burners in 1932

TD
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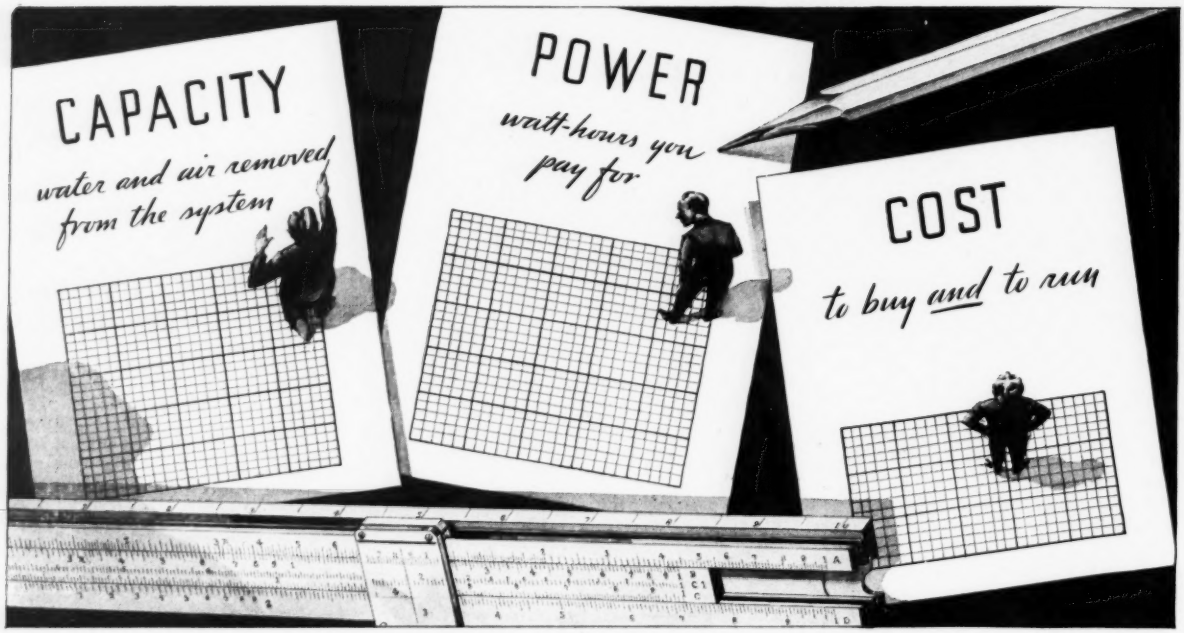
D66
V.139

AUTOMATIC HEAT
Page 61

APRIL 2, 1932



NO MATTER *how you figure*

There are three ways to figure heating pump value... capacity, power consumption, and cost. No matter which you use, you'll find greater value in Jennings Vacuum Heating Pumps.

Capacity is the only true measure of a heating pump. Jennings Vacuum Heating Pumps have greater capacities. They give you more capacity for each dollar invested.

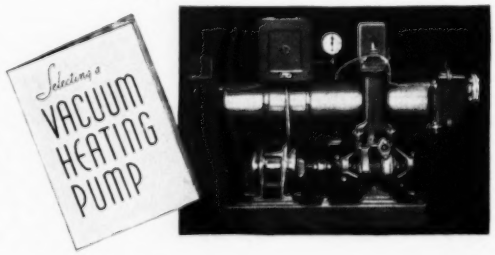
And, less power is needed to drive a Jennings Pump. Because of its extra capacity, a Jennings operates for shorter periods at a time, reducing power consumption still further. In addition, Jennings Pumps are built for lifetime service. There are many instances of 10 and 15 years service without even minor repairs. It costs less to operate a Jennings Pump.

Pump ratings in square feet of radiation afford at best a rule-of-thumb method of specifying pumps. The method is complete and reliable for determining the correct pump for a heating system only when the pump's water and air capacities for a given horsepower in a given time are known.

When all these factors are considered, there's always a Jennings Pump available at the lowest initial investment.

NEW BOOKLET TELLS WHY RATINGS SHOULD BE SUPPORTED BY CAPACITIES

If you are interested in obtaining greater value for your heating pump investment, this booklet will be of great assistance. Write for a copy.



NASH ENGINEERING COMPANY, 41 WILSON ROAD, SOUTH NORWALK, CONN.

Jennings Pumps

VOGEL NUMBER TEN-A Seat Action Closet Combination, with concealed tank. VOGEL NUMBER TEN has exposed tank.

The Vogel Endurance Test is nearing the half million mark!

The Vogel Number Ten Closet, placed on a day and night Endurance Test, July 16, 1929, has now flushed 423,000 times, *and only one washer has had to be renewed.*

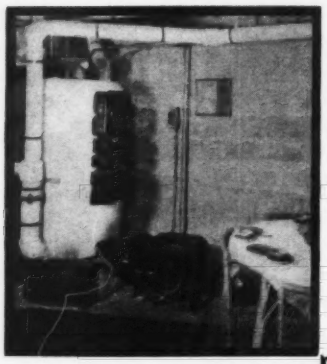
THIS actual proof of the economy and low upkeep cost of Vogel Closets will appeal to your customers, particularly at this time. Nowadays schools and factories ***must*** keep down overhead, and Vogel Closets, by eliminating the cost of repairs and using less water, accomplish this.

And, as always, there is a good profit for everybody who handles Vogel products, for it has been, and will continue to be, our policy to see that the plumbing industry makes the profit to which it is entitled.

Literature imprinted with your name and address will be sent promptly on request.

JOSEPH A. VOGEL COMPANY
Wilmington, Del. St. Louis, Mo.

VOGEL PATENTED *Products*



DOMESTIC ENGINEERING

Plumbing & Heating Contracting & Merchandising

Established 1889

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Make the Piping Job COMPLETE with BYERS WROUGHT IRON NIPPLES

WHEN corrosive conditions call for Byers Wrought Iron Pipe, follow through with Byers Wrought Iron Nipples. Why? Because nipples are as important as the pipe itself. Therefore they should have the same corrosion-resistance qualities.

The use of Byers Wrought Iron Nipples means tight joints that stay tight — joints that can be depended upon for long, uninterrupted service. Made of the same wrought iron which has established countless service records for Byers Wrought Iron Pipe, Byers Nipples are the logical selection of the man who likes to see the best job well done.

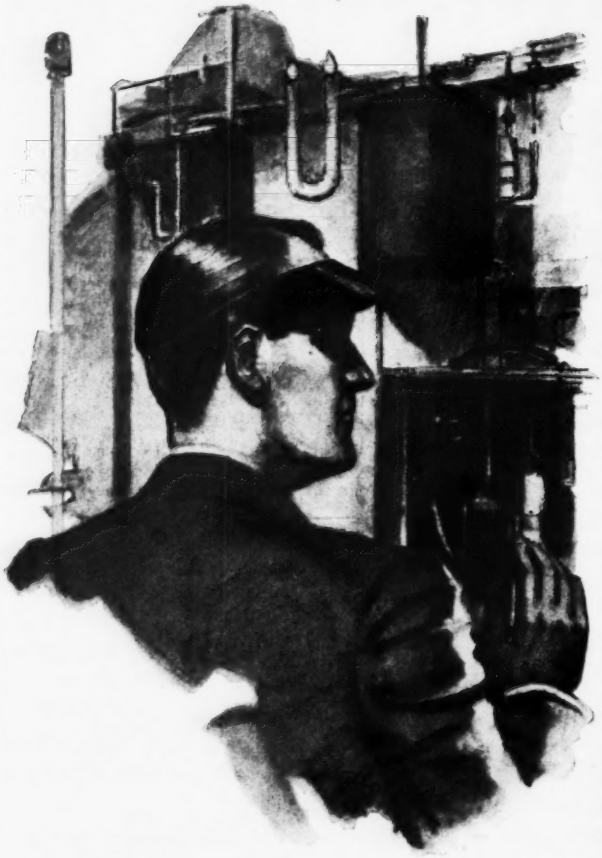
When you order from your jobber be sure to specify Byers Genuine Wrought Iron Nipples. Each one is made from new, tested and full weight genuine wrought iron pipe in accordance with the Commercial Standards of the Department of Commerce, Bureau of Standards. Your request will bring our new folder — giving sizes, weights, etc. of Byers Nipples. A. M. Byers Company, Pittsburgh, Pa. Established, 1864.

You'll like Byers Jobbers—Good stocks; quick deliveries; dependable service.

BYERS GENUINE WROUGHT IRON **PRODUCTS**

PIPE · CASING · COUPLINGS · NIPPLES · WELDING ELBOWS · SPECIAL BENDING PIPE
BAR IRON · TUBING · PLATES · SHEETS · BILLETS

FROM THE NATIONAL RESEARCH LABORATORIES CAME TODAY'S



IN THE NATIONAL RESEARCH LABORATORIES TOMORROW'S PRODUCTS ARE IN THE MAKING

While business authorities were preaching that the laboratory held the secret of future success, National has been practicing.

Regardless of general business conditions, the National Research Laboratories hum with activity.

National Research Engineers never slacken in their task of developing new equipment, of improving staple equipment, of assuring that today's products will completely meet today's needs, and that tomorrow's requirements will be intelligently anticipated.

This applied policy of continuous, intensive research produced the Aero Convector . . . a new concealed heating unit, made of cast iron and designed to heat solely by convection, engineered along new lines but possessing the dependability, permanence, ease of installation, and flexibility possessed by direct cast iron radiation.

Research produced the National Premier Steel Boiler, "The Boiler with the Flush Front." Designed by skilled and experienced engineers, it combines the best features of current boiler practice with new and outstanding heat generating features.

Research produced the National Gas Boiler, offering the ultimate in mechanical perfection and economical operation. Styled by an industrial designer, it is the center of attraction wherever displayed.

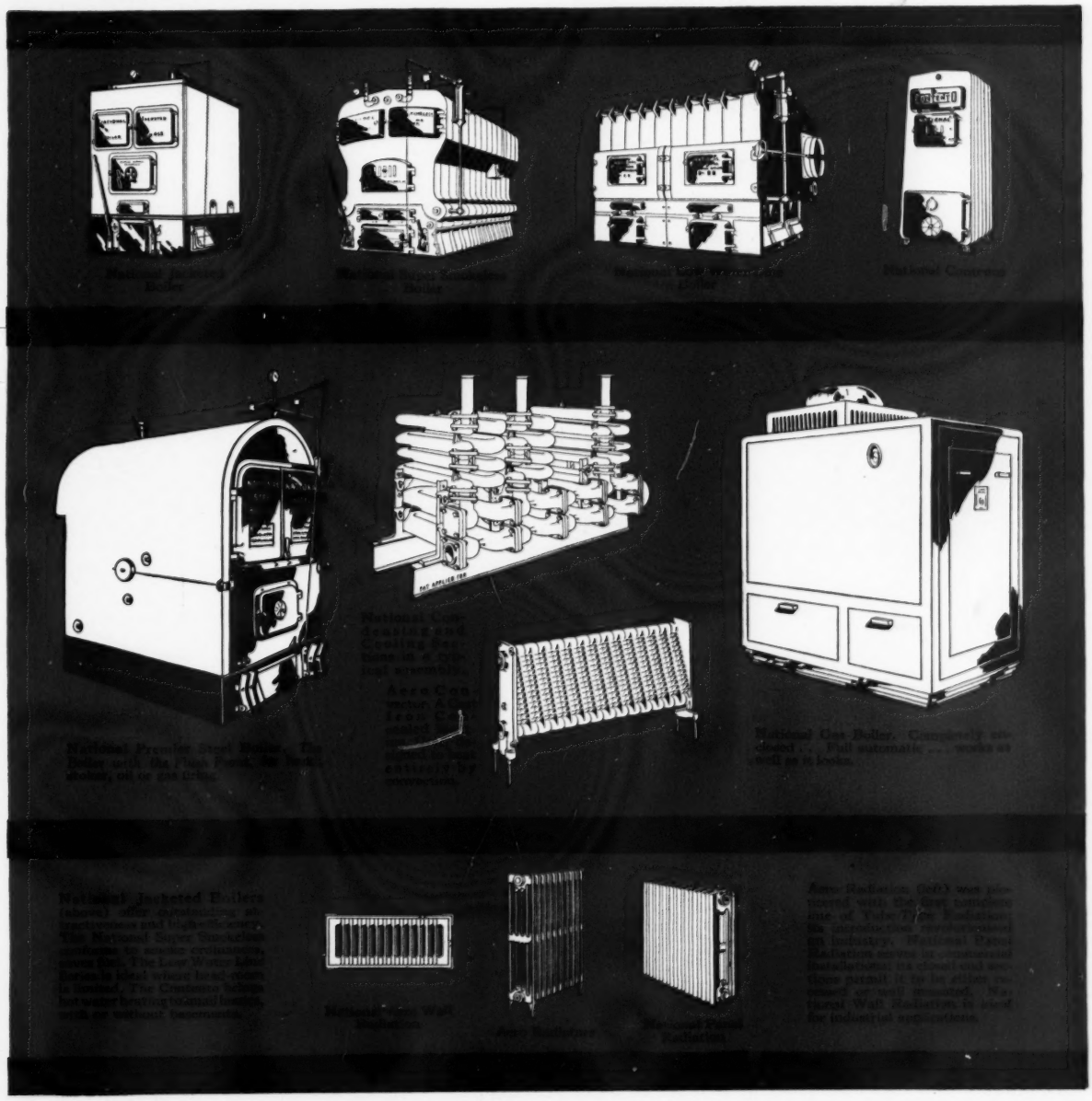
Research produced the National Condenser Sections (for condensing and cooling service and general use in the petroleum and other process industries) which offer high heat transfer and unsurpassed durability and resistance to corrosion.

Research, in short, has made the entire National Line distinguished in its reputation and performance.

From the National Research Laboratories came today's distinguished products . . . and in the National Research Laboratories tomorrow's products are in the making.

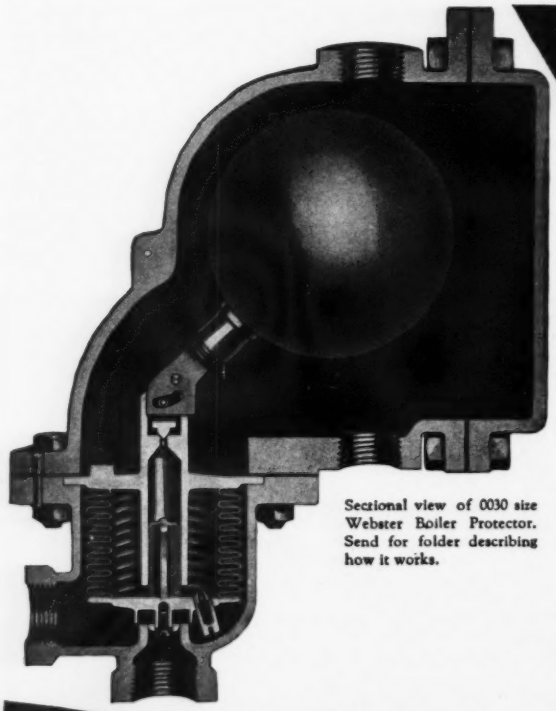
NATIONAL

DISTINGUISHED PRODUCTS

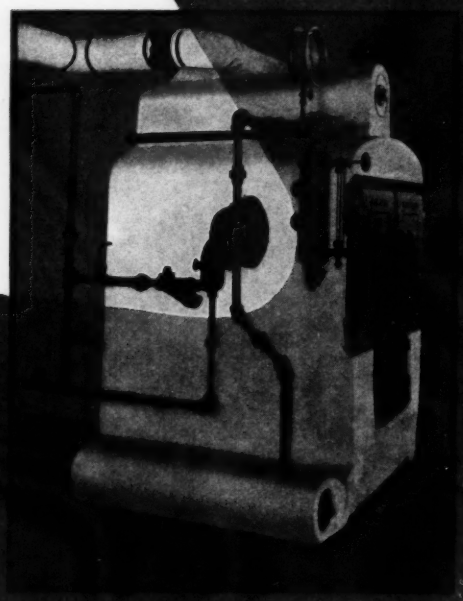


RADIATOR CORPORATION

JOHNSTOWN PENNSYLVANIA



Sectional view of 0030 size Webster Boiler Protector. Send for folder describing how it works.



POSITIVE PROTECTION for small BOILERS

Webster Boiler Protector installed on Cast Iron Boiler

The Webster Boiler Protector

a P11

Kennedy

Rising Stem

Bronze Gate Valve

New!

Fig. 25

Note these specifications of Kennedy Fig. 25

- Special composition stem with exceptional tensile and torsional strength.
- Deep stuffing box with gland and strong packing nut.
- Square section molded packing rings with high graphite content.
- Solid wedge disc and exceptionally large number of stem contact threads in the bonnet.
- Large bonnet hex close to valve body.
- Heavy deep pipe end hexes with generous number of threads.
- Material of all bronze parts is true bronze of uniform composition with clean smooth texture and exceptional strength.
- Non-heating substantial malleable iron hand wheel secured to the stem by nut.

—makes the large Kennedy line still more complete

THE new Kennedy Standard Rising Stem Bronze Gate Valve, Figure 25, has the time-proven Kennedy flexible connection between disc and stem; consequently the wedging action cannot cause the stem to bind, spring or bend out of alignment, causing unnecessary wear or possible stripping of the stem threads. This new Kennedy Valve embodies all the improvements that have recently been made in the well-known Kennedy Stationary Stem Bronze Gate Valve, Figure 27.

This valve will function with equal ease and certainty in any position. It is simple in design, positive in operation, and has no small quick-wearing parts that might cause trouble in service. Its rising stem is an indicator as to the position of the disc, and the heavy, sturdy stem is particularly strong to give maximum resistance to bending or other damage when the valve is open.

This new product provides an additional advantage in standardizing on Kennedy by making the Kennedy line and service to the trade still more complete. Be sure to specify *Kennedy* in all your orders to your dealer for bronze or iron body gate, globe, angle, radiator or check valves; black or galvanized malleable iron pipe fittings; brass or bronze pipe fittings; and cast-iron flanged fittings and flanges. By so doing, you can be certain of prompt, satisfactory service, and you can be confident of securing well designed and accurately machined valves and fittings of uniformly high quality and at standard market prices.

The Kennedy Valve Mfg. Co., Elmira, N. Y.

Branches and Warehouses in Principal Cities

KENNEDY

VALVES-PIPE FITTINGS-FIRE HYDRANTS

Illustration shows "Kumfort" automatic storage gas water heater, made by Lovekin Water Heater Company, Philadelphia. Every "Kumfort" heater has an all-welded Everdur tank.

A *rust-proof* Hot Water Heater... the quality twin of Brass Pipe

TWELVE prominent manufacturers of automatic, storage-type water heaters now furnish their equipment with *rustless* tanks. In leading magazines we are telling the public the advantages of rust-proof units. Get your share of this profitable business by pushing the rust-proof kind.

Copper and Bronze are rustless and highly resistant to corrosion. Many well-made Copper tanks are still sound after forty years and more of continuous use.

ANACONDA

Recently, a number of leading manufacturers have adopted Everdur, 96% Copper alloyed with Silicon and Manganese. This Copper alloy combines the corrosion resistance of pure Copper with the strength of steel. The ease with which it is welded makes Everdur the ideal metal for *rust-proof* tanks of welded construction.

Now automatic water heaters with Copper or Everdur tanks are readily available at moderate prices. Further information and list of manufacturers on request.

Anaconda Brass Pipe

A storage tank of Copper or Everdur, connected with Anaconda Brass Pipe, provides a completely rust-proofed hot water system. Public knowledge of such a system's many advantages will stimulate sales of rust-proof tanks and continue to increase the use of Brass Pipe.

THE AMERICAN BRASS CO.

General Offices: Waterbury, Conn.

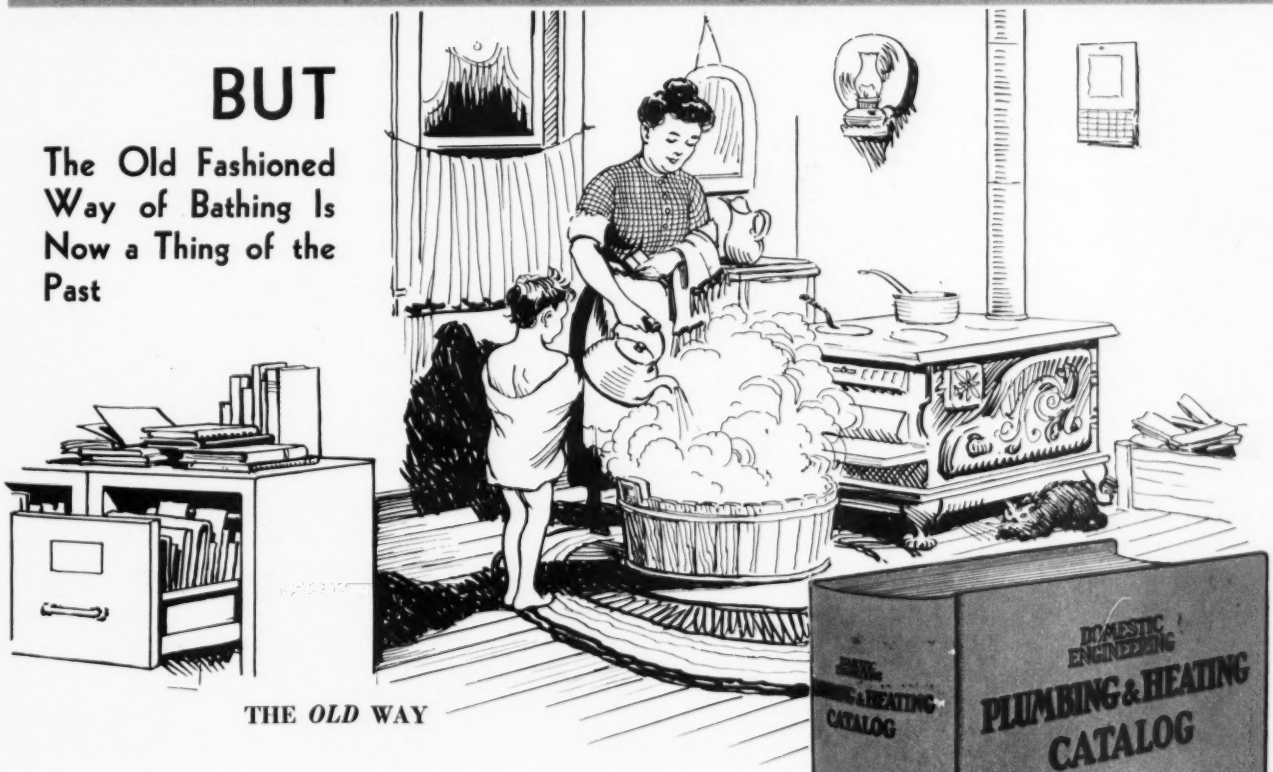
Agencies and Offices in Principal Cities

Tanks of ANACONDA METAL

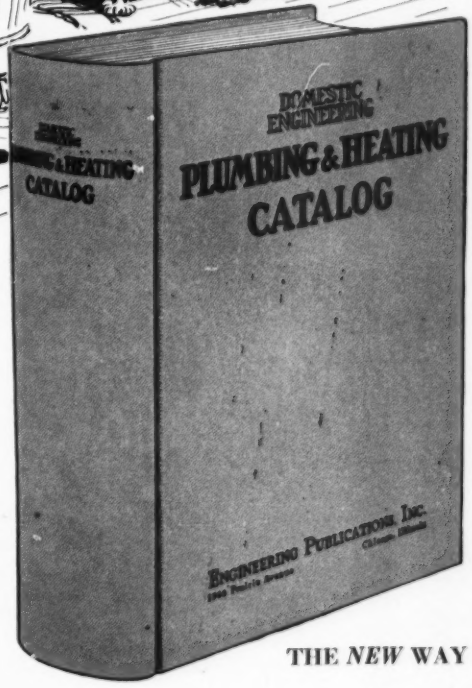
SATURDAY NIGHT STILL COMES ONCE A WEEK

BUT

The Old Fashioned Way of Bathing Is Now a Thing of the Past



THE *OLD* WAY



THE *NEW* WAY

IT is romance now as we look back on the Saturday nights in the old wooden tub, but it was a matter of extreme discomfort in comparison with the bath tub of today. It was a grand and glorious improvement when the old wooden tub became a relic of the "good old days" . . . gone but not forgotten.

And yet the old wooden tub is no more out of date than the old-fashioned "catalog files" in which your representation before the plumbing contractor and the wholesaler was practically a matter of chance.

Compare the advertising power of your individual catalog, which the contractor and wholesaler look into only when they are actually checking your line (providing they have your catalog and can locate it without the loss of too much time), with your catalog pages in the Plumbing and Heating Catalog, in which your products have an audience with buying power every time the contractor and wholesaler use it.

Compare the distribution of your individual catalog with the national distribution of the Big Orange Book which goes to the desks of the top group of 5000 plumbing and heating contractors and more than 1400 wholesalers.

Compare the cost of preparing your own catalog in its entirety with the cost of presenting your complete line in the Plumbing and Heating Catalog.

Then write us and we will gladly explain our Catalog Service, which relieves you entirely of the work of preparing your catalog.

DOMESTIC ENGINEERING

PLUMBING & HEATING CATALOG

1900 PRAIRIE AVE., CHICAGO

Every Other Detail Was Perfect *but*—

Alexoid
RED BAND
Where water conditions are below normal and where they take a toll in wear from ball cocks, install the Sherwood Red Band (Alexoid) Ball Cock. It has been designed to meet the worst conditions in the best manner and is but slightly higher in price.

THE entertaining that people are doing today they are doing in their own homes. They are becoming more and more home conscious and the ball cock in the tank that began to leak some time ago but was never noticed, now is a source of great annoyance.

"We've got to get that fixed before we have any one else over," is what you'll hear many home owners in your community say. Take Sherwood's tip. Use the demand for new ball cocks to sell other plumbing equipment, pottery, enameled ware, kitchen sinks, bath tubs, brass goods, etc.

"Spend for the Home in 1932" is what many people are doing and if you're not getting your share of those expenditures, use Sherwood Ball Cocks to get into the homes where every other detail is perfect except the plumbing.

Order Sherwood Ball Cocks from your jobber today. Let them open the way to new sales, new profits for you!

SHERWOOD BRASS WORKS
JEFFERSON and MT. ELLIOTT AVES. DETROIT, MICH.

Representatives » » » » »

J. A. Riordan Co. (Inc.) 1600 E. 7th St., Los Angeles—5319 Admiral Way, Seattle—955 Bryant St., San Francisco—E. S. Thompson, 2401 Chestnut St., Philadelphia—Fred G. Hoffman, 831 Edgewood Ave., Trenton, N. J.—Fred S. Wilsey, Plymouth Bldg., Minneapolis—Geo. W. Smith Co., 348 W. Penn Pl., Pittsburgh, Pa.

SHERWOOD Ball Cocks

Lost.. $1,597.55

This is a tough story but there's so much truth in it that you ought to read it from beginning to end right now.

• •

"ONE day last Fall I was sitting in the back of the shop wondering what I could do to increase business when the door opened and a young fellow walked in.

"He wanted to buy a toilet seat. Well, I had a lot of sprayed seats on hand so I got out one of them and talked it up.

"He looked it all over and wanted to know who made it, how much it cost and why I thought it was good. After awhile he asked if I carried Church Seats.

"Of course, I had Church Seats and I showed him one of those. When he asked me why the Church Regal Seat cost a little bit more than the white sprayed seat I told him they both *looked* about alike to me.

"So he bought the sprayed seat, saying: 'Well, I hope you've sold me a good seat, for I may need a lot of them before long'.

"I didn't pay much attention to that until last month when I went after a new hotel job that is going up here. The contract was a sweet one, and right now it would mean a lot to me—$1,597.55.

"When I took my bid in who should be sitting there but the young fellow I'd sold the painted seat to.

"'WELL', he says, 'I'm glad to see you. That was some seat you sold me for my home last Fall. I bought it on your recommendation when I really wanted a Church Seat. But you didn't tell me that it would crack—that it was only a painted seat which would chip and peel when the moisture got to work on it.

" 'Sure, I know you're sorry—but being sorry don't do any good. I know a little more about toilet seats now than I did then, for I'm building this hotel. I know, for instance, that every Church Seat is *sheet-covered* with a veneer of solid, wear-resisting sheathing that won't chip and peel. An ordinary painted seat *may look like* a genuine Church *sheet-covered* Seat but that's all.'

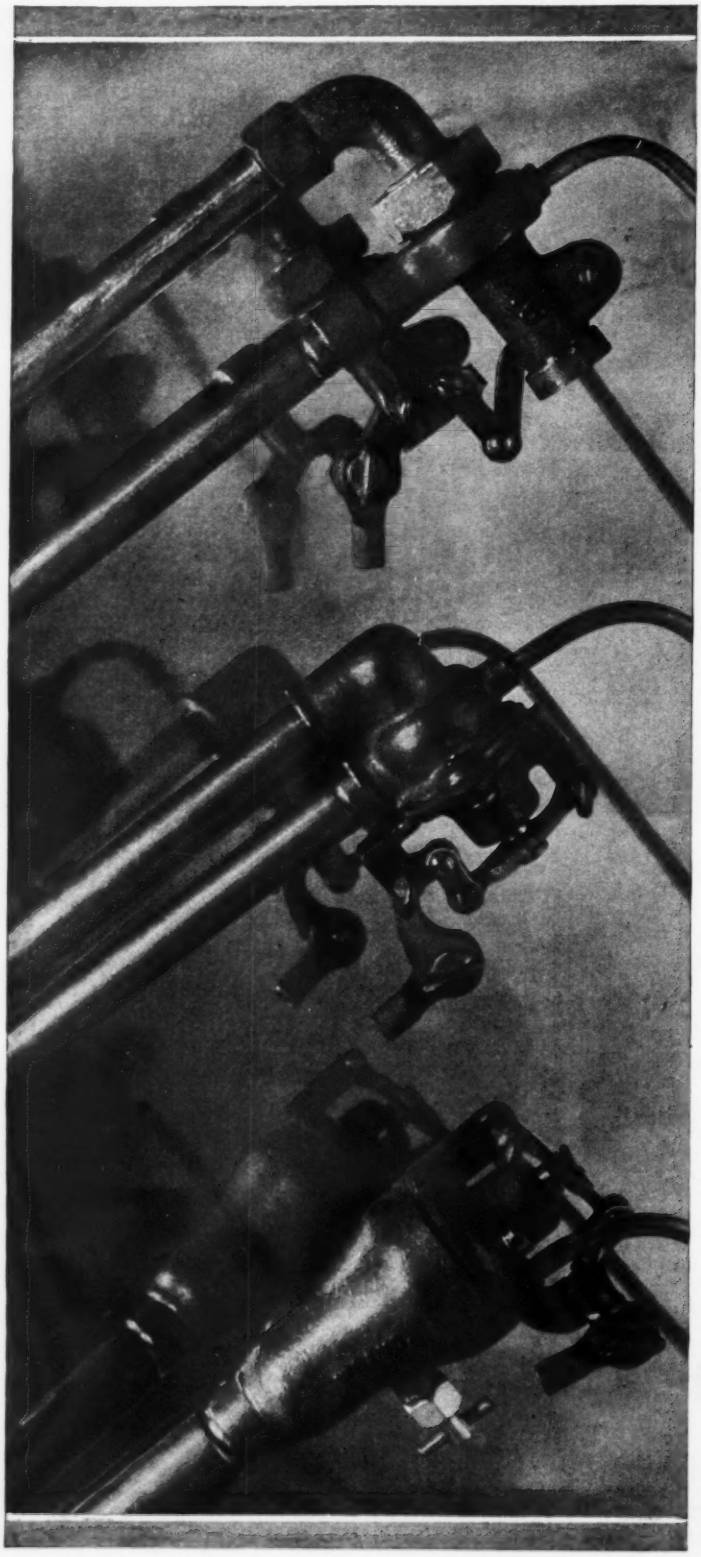
"Well, you could have bought me for about 10c when that young fellow got through. All the time he was talking I kept seeing the plumbing contract for the new hotel laughing at me and a check for $1,597.55 flying out the window—just because I had sold this young fellow an imitation of a genuine Church *sheet-covered* Seat.

"I'm telling you this for I want you to know that from here out I'm selling only *Church sheet-covered Seats*. Imitation painted or sprayed seats may look like them but I'm taking no chances with my reputation from now on. $1,597.55 jobs are too scarce."

• •

ABOUT all we can add is that if he had sold the "young fellow" a Church *sheet-covered* Seat he would have made about *50% more dollar profit* than he did on the imitation. Just another reason for concentrating on Church Seats. C. F. Church Manufacturing Co., Holyoke, Mass.

WOLVERINE FLOAT VALVES



A REFLECTION OF DEPENDABILITY

Every Float Valve in the very complete WB line reflects the niceties of engineering construction and workmanship that has come to mean Dependable to the Master Plumber . . . Only by exacting inspection in each step of manufacture . . . accurate assembling . . . severe tests . . . could this be possible . . . . . The Dependability of each WB Float Valve the Master Plumber installs results in the truest economy . . . the kind of economy that is more than price deep . . . Real Value. . . . . .

WOLVERINE BRASS WORKS
GRAND RAPIDS . . . . MICHIGAN
We Sell the Retail Plumbing Trade

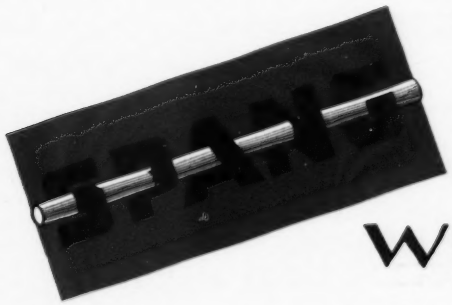
If pipe lined the LOBBIES

more attention could not be paid to its manufacture . . .

"SPANG" WELDED STEEL PIPE is manufactured with the same minute care that an artist would use in painting a fresco in the lobby of a fine building.

Precision and craftsmanship enter into every step of its manufacture. Every length is individually produced, individually inspected and individually tested in a series of systematic steps that assures the utmost dependability. Every length is qualified to meet the closest scrutiny of the most critical.

That is why you can specify "SPANG" with the utmost confidence at all times—why "SPANG" enjoys a nationwide acceptance among leading architects, contractors and engineers.



SPANG, CHALFANT & CO., INC.
GENERAL OFFICES, CLARK BUILDING
PITTSBURGH, PA.
Sales Offices: New York, Boston, Pittsburgh, Chicago, St. Louis, Tulsa, Los Angeles, Dallas, San Francisco
Welded Mills: Etna, Penna., Sharpsburg, Penna.
Seamless Mills: Ambridge, Penna.

WELDED STEEL PIPE

MYERS

Announces

NEW LOW PRICES

Here is an important announcement of Reduced Prices on MYERS PRODUCTS—Hand Pumps, Power Pumps, Pumping Jacks, Water Systems, Cylinders, Hand Spray Pumps and Compressed Air Sprayers, Hay and Grain Unloading Tools, and many other items appearing in Myers No. 64 Catalogs and subsequent catalogs and supplements—that will be welcomed by every Myers Dealer and Distributor.

Coming at the very minute when Spring and Summer Business is opening up with thousands of prospective purchasers in the mood to buy, this announcement of lower prices on the Myers Line will afford inspiration and a real incentive for Myers Dealers and Distributors to cash in with a thoroughly established, nationally advertised, quality line of necessity merchandise.

Whether you sell the complete Myers Line or only a part of it, you as well as your customers will receive the benefit of our lower prices made possible through manufacturing, distributing and advertising economies, anticipated savings in lower priced raw materials, adjustments in salaries, wages and other expenses incidental to the operation of our plant and offices.

Remember, no cheapening of finished products to stimulate an artificial market. Even higher standards of quality will prevail. Greater values at lower prices supported by manufacturing strength, permanency, integrity and a sound trade policy long recognized for its originality, uniformity and fairness to the trade in general, tells but a part of the story. The final chapters will be written by our splendid dealer and distributor organization who will be quick to recognize the advantages of lower prices at this time, and take full advantage of them during the important selling months just ahead.

If you have not already received the announcement by mail, or if you do not receive it within the next few days, or if one of our representatives fails to see you in due season and give you complete information, write or wire us for all of the details. Do not delay—prompt action on your part will open the way to immediate business and profits.

THE F. E. MYERS & BRO. CO.

ASHLAND, OHIO

PUMPS — WATER SYSTEMS — HAY TOOLS — DOOR HANGERS

INSTALL HOT WATER HEAT

Equipped with ---

THRUSH SYSTEM *of* HOT WATER HEATING

The value of *any* product is governed by the service it renders—and—the efficiency of *any* Hot Water Heating System is regulated by its controls. Consider these facts when you recommend your next heating installation . . . compare the superior features of Thrush System of Hot Water Heating with other methods of house heating . . . then . . "let your conscience be your guide."

An interesting booklet is yours for the asking—use the coupon.

H. A. THRUSH & COMPANY
PERU INDIANA

THRUSH SYSTEM OF HOT WATER HEATING H.A.THRUSH CO. PERU Quality

COUPON

H. A. THRUSH & COMPANY, Peru, Indiana, Box 459

Gentlemen: O. K. send the booklet. I would like to know more about Thrush System.

Name .....

Company .....

Address .....

ARE *YOU* IN IT?

Through more than twenty publications serving all phases of the building and home industries and serving, too, the advertising men in the manufacturing divisions of these industries, the "Spend for the Home in 1932" movement has been put before more than half a million persons.

The plumbing and heating field, through the efforts of DOMESTIC ENGINEERING, has used more than 100,000 stickers of the slogan in colors, close to 20,000 posters and dozens of electrotypes for newspaper advertisements, postcards, letterheads, envelopes, etc., etc.

The editorial pages of this issue of DOMESTIC ENGINEERING suggest even further uses for this slogan which has so thoroughly blanketed the retail field and which is swiftly mounting in importance as a sales builder.

You are invited to join this movement. DOMESTIC ENGINEERING makes it possible for you to do so at a trifling cost. When you use the posters, stickers and electrotypes of the slogan, you tie up with what is perhaps the fastest growing sales movement of the building and home industries.

GET your supply of this material today. Here are the prices of the window cards or posters, size, 8¼x12 inches.

The prices of these cards are as follows:

10 cards for 50 cents
25 cards for 75 cents
50 cards for $1.25
100 cards for 2.00
500 cards for 9.00
1000 cards for 17.00

We cannot undertake to ship less than 10 of these cards.

Stickers of the slogan, in the same design as shown above but of 1¼ in. x 2 in. proportions are also available. Order these stickers. Use them on your letterheads, envelopes, billheads, business cards, etc., etc.

The prices of the stickers are as follows:

1000 stickers for $1.50
2000 stickers for 2.50
5000 stickers for 5.00

Get a supply of cards and stickers now.

Electrotypes of various sized cuts of the slogan are also available. These can be had for one and two-color printing. Electrotypes are priced as follows:

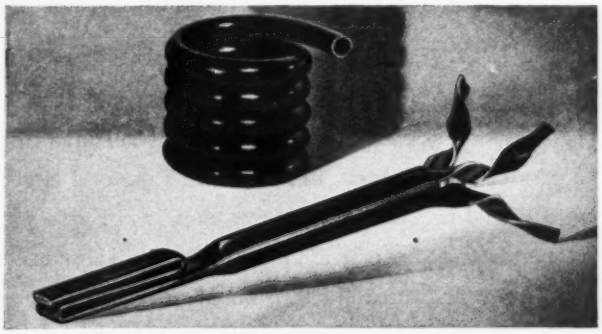
Electro for one-color printing, 2⅛x2⅛ in.	$0.35
Electro for two-color printing, 2⅛x2⅛ in.	.65
Electro for one-color printing, 3½x5½ in.	.55
Electro for two-color printing, 3½x5½ in.	1.00
Electro for one-color printing, size approximately 8x12 in.	2.50
Electro for two-color printing, size approximately 8x12 in.	4.50

Order what you need to get in on this big drive now. Read the editorial pages of this issue for more details.

DOMESTIC ENGINEERING, 1900 PRAIRIE AVE., CHICAGO

STEEL PIPE—ONE OF MANY J&L STEEL PRODUCTS

J & L steel products, including practically the full range of the industry, are known and used everywhere. J & L steel piling aids in the building of foundations. J & L structural shapes go into buildings everywhere. J & L railroad spikes hold down the rails on countless miles of track. J & L tin plate forms the cans that hold all kinds of food products. J & L nails, staples, and other wire products serve a wide variety of industries. J & L cold finished steels are used in an almost endless list of machines and products. These things are of significance to the buyer of J & L steel pipe, for they testify to a breadth of knowledge, a completeness of facilities, that is an excellent indication of the ability of J & L to make just the kind of pipe that will fill the customer needs, in any quantity required.



Samples of J & L Pipe to which unusually severe tests have been applied.

RIGIDLY INSPECTED

Every length of J & L steel pipe is subjected to a hydrostatic test, to prove its strength and tightness. Routine crushing and bending tests are regularly applied; on certain sizes the cropped pipe ends are flattened, then given a sharp 90° bend. Routine tests likewise provide a check on the coiling qualities of the pipe. Lengths are wound to form spiral coils of small diameter (the one inch pipe, for example, is wound around a piece of three inch pipe). In such rigorous tests as these is found the secret of J & L Steel Pipe satisfaction. Quality is always maintained—and so the user is always satisfied.

OUTSTANDING FEATURES OF J & L STEEL PIPE

1—Uniform Quality Steel

2—Free from Excess Scale

3—Accurate Mill Threads

4—Free Cutting—Easy to Thread

5—Sound Couplings

6—Thoroughly Coated

7—Rigidly Inspected

8—Galvanized Pipe Uniformly Coated—No Clogging with Spelter

J&L STEEL

JONES & LAUGHLIN STEEL CORPORATION

AMERICAN IRON AND STEEL WORKS

JONES & LAUGHLIN BUILDING, PITTSBURGH, PENNSYLVANIA

Sales Offices: Atlanta, Boston, Buffalo, Chicago, Cincinnati, Cleveland, Dallas, Denver, Detroit, Erie, Los Angeles, Memphis, Milwaukee, Minneapolis, New York, Philadelphia, Pittsburgh, St. Louis, San Francisco

Warehouses: CHICAGO, CINCINNATI, DETROIT, MEMPHIS, NEW ORLEANS, PITTSBURGH

J & L JUNIOR BEAMS

J & L STEEL PIPE

J & L LIGHT CHANNELS

J & L NAILS and STAPLES BRIGHT and GALVANIZED

J & L CONCRETE BARS

J & L STRUCTURAL STEEL

J & L STEEL PILING

There's ECONOMY, *too, in using* SCALE FREE PIPE !

Economy, and not mere good looks commends the scale free process by which NATIONAL Pipe (butt-weld sizes ½ to 3-inch) is made clean and smooth—free from scale. The impression of uniformity and integrity that you receive in looking at this finely finished pipe is borne out in the character of its structure and by experience in service.

Pipe thus freed from mill-scale is less subject to corrosion, especially pitting. It will retain galvanizing or other protective coats more firmly. It will convey a larger flow of liquid or gas; and it reduces clogging of valves and small openings because there is no foreign substance to come loose and cause obstruction. Moreover, the processes that make it clean and scale free, heighten the strength at the welds, which may be important if bending, coiling or other special manipulation has to be done.

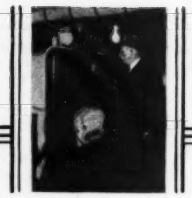
The manufacturers take pride in the fine appearance of this pipe but they take much greater pride in the durability and economy which this appearance truly denotes and which has made NATIONAL—

America's Standard Wrought Pipe

NATIONAL TUBE COMPANY, Pittsburgh, Pa.
Subsidiary of United States Steel Corporation

NATIONAL SCALE FREE PIPE

SPELLERIZED



BETWEEN OURSELVES

DOMESTIC ENGINEERING, APRIL 2, 1932

Don't Swear at the Phone

"YOU can't expect to be busy these days, if you just sit in the office waiting for the phone to ring, swearing because it doesn't and keep on talking about depression." This is what one reader told me when meeting the invitation in this column last week to send in a copy of his new sales letter.

But Work Your Prospects

WHAT has interested me most and will interest you too, is the invariable statement in these letters from readers that "we had very good results," "we secured several orders," "a number of people called up to ask us more about the cuts in labor and materials." These comments explain why so many contractors have been busy in working over lists of customers and prospects who were considered as off the market a month ago.

Does Not Sell Price

EVERY one recently has talked about selling methods, wondering whether to go in for price selling or to hold to a higher price backed by performance and service. In our field work, we were fortunate in running into a dealer way up in the busy city of Vancouver, B. C., who is holding definitely to a quality level. "Prices are not for sale in this store." Whether or not you can use his plan successfully, you will pick up some good sales pointers on oil burners and other plumbing and heating products from this enterprising Canadian.

Automatic Heat

AUTOMATIC heat means modern comfort to growing thousands of American citizens. "Automatic Heat" as an editorial section of every issue of this publication means a definite service to thousands of readers. In this issue, you will find how one contractor is using today's market conditions to promote the sale of automatic heating equipment; how another dealer has learned through experience to handle salesmen and get results without unbearable expense and for variety, a practical discussion of the adjustments necessary when changing from gas of one heat value to another.

Owe Debt to Plumbers

AN outstanding leader among plumbing and heating contractors is Jere L. Murphy of New York City. And one direction in which he has led has been in advancing the science of plumbing so that those living in large cities would enjoy healthy conditions. "Millions of persons now living," Mr. Murphy tells you in this issue, "owe a debt of gratitude to the master plumber."

J. L. Murphy on Venting

WELL, we feel grateful to Mr. Murphy for his interesting article on "A Half Century of Plumbing Progress." And you will too. He tells of the constructive efforts of master plumbers over a period of years to bring about improvements in plumbing design and installation which would meet the changing needs of rapidly growing cities. His comments on venting are decisive and individual. You may not agree. If you don't—or if you do—write Mr. Murphy or write me and this nationally known leader will answer you.

A Timely Service

THE success meeting the efforts of those contractors who are going after business on the new standard of cost opened up in the past two or three weeks by labor reductions and low priced materials, is worth your close study. You'll find right through this issue facts about these results, information about this new sales drive and copies of letters which energetic dealers are using. It makes this issue one of timely and definite value. We planned it for your assistance and use. Tell us how you use it.

Your Editor

More Contractors Tell Customers of Lower Cost of Labor and Materials

GEORGE H. DRAKE
INCORPORATED
"LIVING COMFORT"
HEATING, PLUMBING, PIPING INSTALLATIONS
TELEPHONE GRANT 3137
218 LEXINGTON AVENUE
BUFFALO, N. Y.

March 3, 1932

This is a letter about quality -- quality in plumbing fixtures.

You will agree with me, I believe, that quality in plumbing is important because plumbing fixtures, once they are installed in your house, become a permanent part of it and cannot be changed as easily as furniture.

There are just two essentials of trouble-free plumbing:
1. Quality materials made by reputable manufacturers.
2. Good installation by a reliable contractor.

That's all there is to quality in plumbing, yet many people overlook one or both of these points. Many people have the erroneous opinion that plumbing is plumbing wherever you buy it and that all plumbing contractors do work equally good.

Unfortunately that is not the case. Plumbing fixtures can be cheapened in the manufacturing process just as anything else. Reputable manufacturers, however, who sell only through plumbing contractors make only merchandise of high quality.

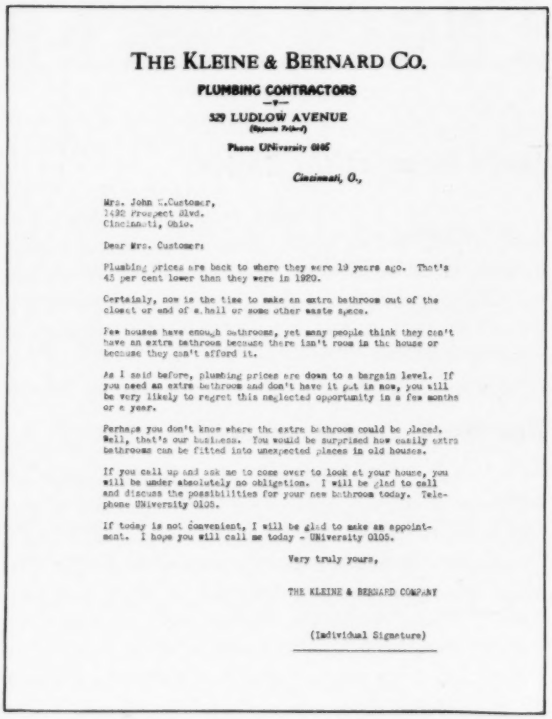
Plumbing has come down in price like everything else. You can buy the best plumbing fixtures today for 25 per cent less than a year ago. In fact, prices are back to where they were 19 years ago and labor, too, costs less and is more efficient.

There is, therefore, no reason today why everyone should not demand and get quality in plumbing. We assure you of quality in everything from the smallest repair job to a complete multi-bathroom installation. We invite your patronage.

Sincerely yours,

GEORGE H. DRAKE, Inc.

By:



THE KLEINE & BERNARD CO.
PLUMBING CONTRACTORS
529 LUDLOW AVENUE
Phone UNiversity 0105

Cincinnati, O.,

Mrs. John K.Customer,
1432 Prospect Blvd.
Cincinnati, Ohio.

Dear Mrs. Customer:

Plumbing prices are back to where they were 19 years ago. That's 45 per cent lower than they were in 1920.

Certainly, now is the time to make an extra bathroom out of the closet or end of a hall or some other waste space.

Few houses have enough bathrooms, yet many people think they can't have an extra bathroom because there isn't room in the house or because they can't afford it.

As I said before, plumbing prices are down to a bargain level. If you need an extra bathroom and don't have it put in now, you will be very likely to regret this neglected opportunity in a few months or a year.

Perhaps you don't know where the extra bathroom could be placed. Well, that's our business. You would be surprised how easily extra bathrooms can be fitted into unexpected places in old houses.

If you call up and ask me to come over to look at your house, you will be under absolutely no obligation. I will be glad to call and discuss the possibilities for your new bathroom today. Telephone UNiversity 0105.

If today is not convenient, I will be glad to make an appointment. I hope you will call me today - UNiversity 0105.

Very truly yours,

THE KLEINE & BERNARD COMPANY

(Individual Signature)

George H. Drake

IN ALL parts of the country, plumbing and heating contractors are swinging into action in a new sales drive for business. The effect of the cuts which labor has voluntarily taken in many localities has been to inspire the employing contractors to use this argument of cheaper labor and cheaper materials to attract orders. And they report to DOMESTIC ENGINEERING that this sales effort is getting business.

As one northwestern contractor put it to his customers, business wasn't so brisk in his shop but if these customers really understood what had taken place in material and labor costs, his business would be active. And he wrote us of the resulting orders, running up to more than $1,000, with $2,000 under estimate and winding up to tell in a postscript that another inquiry had come in while he was writing the letter.

We have selected for these two pages, four representative letters and others will be found on pages 44 and 45. These letters show the definite use being made of the price argument at the same time that quality materials and quality workmanship are placed in the proper light as a necessary safeguard which every customer must recognize.

With continuing reports reaching us of labor adjustments in more localities, and assured by the success which many contractors are meeting in using today's

Edward B. Kleine

conditions as a sales weapon, it is evident that the next few weeks will see readers of DOMESTIC ENGINEERING embarked on a new and aggressive sales drive. Remodeling has gained a new ally in labor reductions and the purchasers are showing a willingness to recognize the bargain counter nature of offers which contractors now make.

In later pages of this issue, you will find other suggestions as to the advantage of taking part in today's new sales efforts. The "Spend for the Home in 1932" program which this publication initiated, has taken hold in many directions and in many localities. A report of some of its newest results are given on pages 46 and 47.

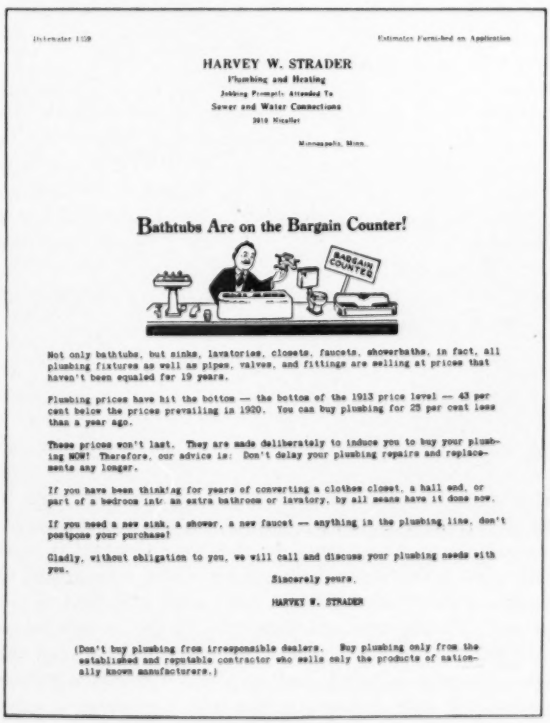
Harvey W. Strader

A reader of DOMESTIC ENGINEERING writes us: "In view of the reductions in the wage scale in the building trades, would it not be a constructive move to use this development in connection with your "Spend for the Home in 1932" campaign. Now both labor and materials are at the bottom. The public will not again for many years be able to build or remodel as cheaply as it can at the present time. It seems to me that contractors can use these two things to good advantage; that the manufacturers should use their sources of publicity to get newspapers to feature these facts. DOMESTIC ENGINEERING by promoting such activities is doing a great deal to bring about increased building and remodeling."

Another reader who responded to our invitation in the last issue for copies of these new sales letters, puts over to his customers the thought of the bargain prices now offered and winds up "On March 14, 1932, our charge for services of experienced, licensed mechanics was reduced. We all have been waiting for this reduction for some time, and this together with the extremely low cost of material, enables you to have work done now on your plumbing and heating system at a considerable saving."

The Chicago association of master plumbers in notifying its members of the labor reduction, concluded, "In order, therefore, to stimulate modernization work we sincerely trust you will give this reduction in the journeymen's wage scale the widest possible publicity among your customers and the public generally." Copies of sales letters should be sent to us, so that we can continue to help improve business.

Rupert J. Weber



HARVEY W. STRADER
Plumbing and Heating
Jobbing Promptly Attended To
Sewer and Water Connections
3010 Nicollet
Minneapolis, Minn.

Bathtubs Are on the Bargain Counter!

Not only bathtubs, but sinks, lavatories, closets, faucets, showerbaths, in fact, all plumbing fixtures as well as pipes, valves, and fittings are selling at prices that haven't been equaled for 19 years.

Plumbing prices have hit the bottom — the bottom of the 1913 price level — 43 per cent below the prices prevailing in 1920. You can buy plumbing for 25 per cent less than a year ago.

These prices won't last. They are made deliberately to induce you to buy your plumbing NOW! Therefore, our advice is: Don't delay your plumbing repairs and replacements any longer.

If you have been thinking for years of converting a clothes closet, a hall end, or part of a bedroom into an extra bathroom or lavatory, by all means have it done now.

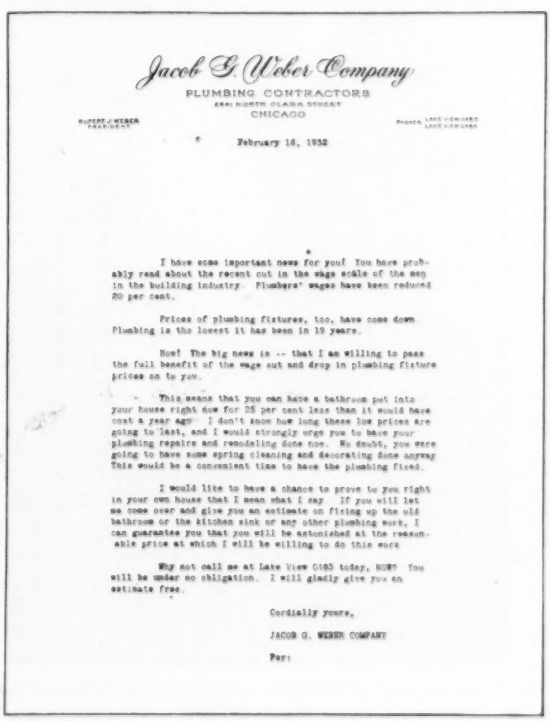
If you need a new sink, a shower, a new faucet — anything in the plumbing line, don't postpone your purchase!

Gladly, without obligation to you, we will call and discuss your plumbing needs with you.

Sincerely yours,

HARVEY W. STRADER

(Don't buy plumbing from irresponsible dealers. Buy plumbing only from the established and reputable contractor who sells only the products of nationally known manufacturers.)



Jacob G. Weber Company
PLUMBING CONTRACTORS
CHICAGO

February 16, 1932

I have some important news for you! You have probably read about the recent cut in the wage scale of the men in the building industry. Plumbers' wages have been reduced 20 per cent.

Prices of plumbing fixtures, too, have come down. Plumbing is the lowest it has been in 19 years.

Now! The big news is -- that I am willing to pass the full benefit of the wage cut and drop in plumbing fixture prices on to you.

This means that you can have a bathroom put into your house right now for 25 per cent less than it would have cost a year ago. I don't know how long these low prices are going to last, and I would strongly urge you to have your plumbing repairs and remodeling done now. No doubt, you were going to have some spring cleaning and decorating done anyway. This would be a convenient time to have the plumbing fixed.

I would like to have a chance to prove to you right in your own house that I mean what I say. If you will let me come over and give you an estimate on fixing up the old bathroom or the kitchen sink or any other plumbing work, I can guarantee you that you will be astonished at the reasonable price at which I will be willing to do this work.

Why not call me at Late View 0193 today, NOW? You will be under no obligation. I will gladly give you an estimate free.

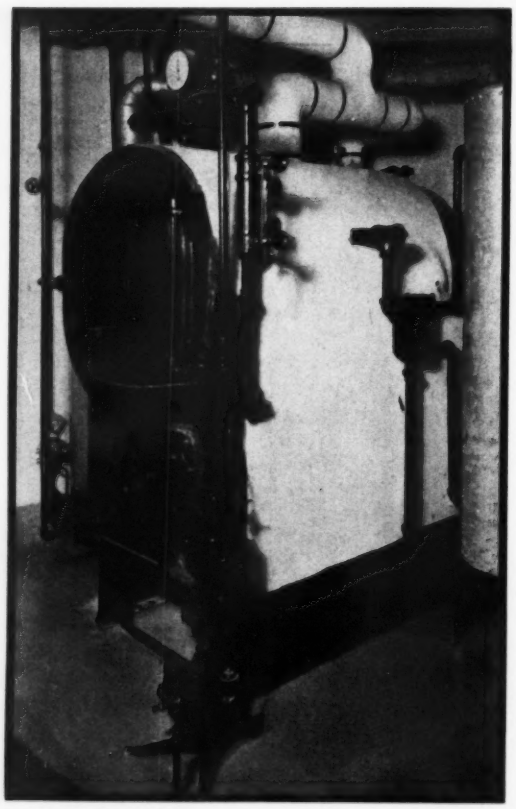
Cordially yours,

JACOB G. WEBER COMPANY

Per:

Residences offer oil burner and plumbing sales leads to this contractor

Sells Price Buyers on Quality



Oil burner sold and installed as part of plumbing and heating contract

PRICE is the defense which more customers have been using recently against the sales attack of the plumbing and heating dealer. Various means are used by one or the other dealer to meet and overcome this objection. Some have turned toward the level of cheapness in response to the apparent success of those firms, frequently unequipped to install a workable heating system, who feature competitive prices.

Success in the opposite direction, that is, in playing up quality materials, correct installation and satisfactory use, is something that every dealer handling plumbing and heating products would like. That is why prominence is given in this issue to the record of a plumbing and heating dealer in Vancouver, British Columbia, who has made a success of the oil burner business and who says "prices are not for sale" in his store. And Vancouver is typical of business conditions in the average American or Canadian city.

TAKING THE CUSTOMER'S PLACE

Quality, not price, is the dominant feature of the merchandising program which has been successfully adopted by San-O-Heat Limited, plumbing and heating specialists of 2626 Granville Street, Vancouver, B. C. This firm in its merchandising efforts, taking its cue from its president, first of all endeavors to place itself in the position of its customers. In this way, the fact is made clear that a customer demands the most economical installation possible, consistent with a set standard of fixtures. Having realized that this is the viewpoint of prospective customers, the firm endeavors to keep this fact carefully in mind, and as a result explains to customers that true economy is not only a question of price,

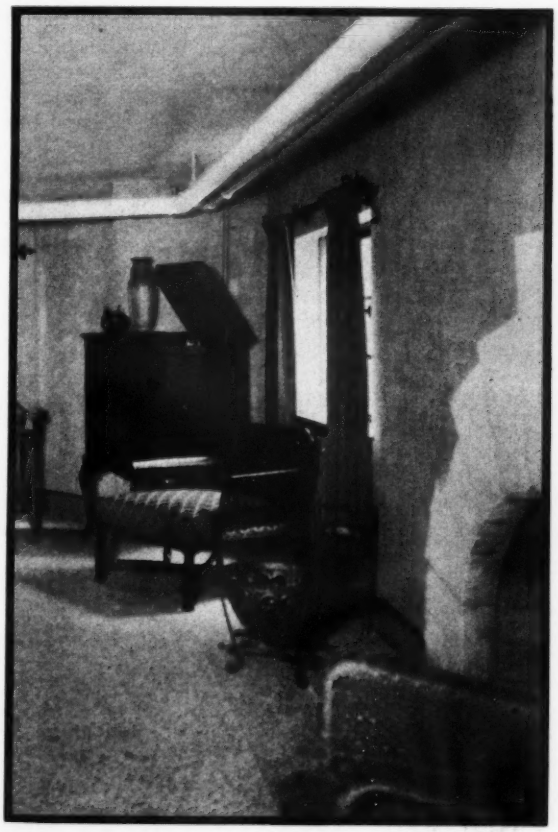
but that it is the important question of service and durability.

San-O-Heat Limited is headed by Frank Morgan, who established the business in 1929. Mr. Morgan is well known in the plumbing and heating business throughout western Canada and, in fact, all over the Dominion and throughout many of the western states. Prior to opening up his own business, he was in a responsible position with the old-established plumbing firm of Barr & Anderson Limited, Vancouver, for many years.

EXPERIENCED HEATING MAN IS BEST DEALER

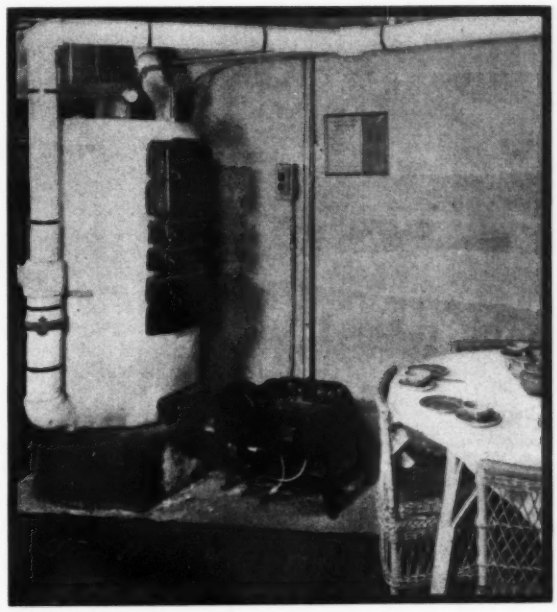
Oil burners in the majority of cases are sold at the same time as plumbing and heating installations. The salesmen endeavor to make all plumbing and heating installations a threefold contract and to include an oil burner sale with each major job. This policy has worked out successfully for the firm.

Mr. Morgan states that, in his opinion, no man in the heating business should be content to sell an oil burner unless he could also complete the sale of other heating equipment. In other words, when a new job is being handled, Mr. Morgan believes that with a little sales pressure along strictly educational lines, the customer can be induced to install an oil burner as part of his heating system.



How advantages of automatic heat are shown in sales photograph

When this is accomplished at the same time as the regular heating installation is being put in, the heating engineer who has been awarded the contract is able to see that his system is adapted to oil burner use and consequently the maximum in satisfactory results are secured. This satisfaction is reflected in the goodwill of the customer and this goodwill has served as one of the best advertising mediums in producing future sales with other individuals.



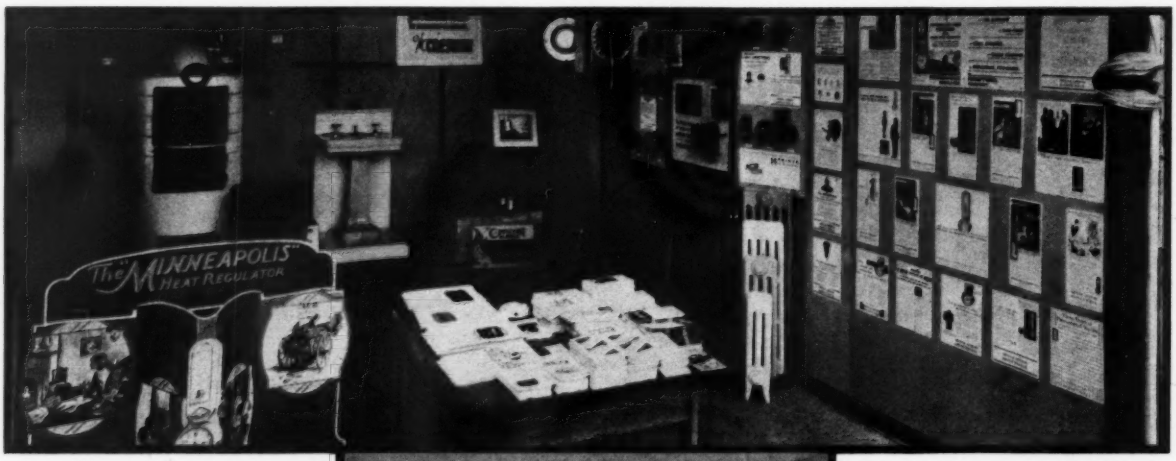
Employes took advantage of burner installation (page 24) to fit up recreation room

A WELL PLANNED SHOWROOM

In cases where oil burners are being sold for installation with an existing heating system, Mr. Morgan or one of his qualified men, always makes a careful policy of going to the home and studying the existing heating system before he endeavors to complete the sale of an oil burner. He believes that if the system which is in the home will not adapt itself in a satisfactory manner to the use of an oil burner and if the customer is not prepared to make any changes to his heating system other than merely installing an oil burner, then it is much more satisfactory for the heating contractor to forget about this business. If he takes the business, lack of satisfaction will undoubtedly result in the creation of ill will towards the store and may damage its reputation and drive possible future business elsewhere.

Mr. Morgan also reports that firms with few exceptions have found that the handling of oil burners exclusively, apart from the regular plumbing and heating business, is not a satisfactory trade. He feels that oil burners have their proper place in a plumbing and heating establishment where engineers who have made a careful study of heating problems are able to co-operate to the fullest degree in providing satisfactory working conditions for the oil burner when it is installed.

The modern premises of the firm on Granville Street, Vancouver, are divided into two sections. The front of the establishment is one of the most attractive retail stores in the plumbing and heating trade in Vancouver. At the rear is an equally well equipped work shop. The



Taking advantage of advertising helps secured from manufacturers

Oil burner which heats contractor's showroom is also a demonstrator

two sections are divided by an office with a drafting room immediately above. The store was laid out purposely in this way with a view to providing a barrier between the mechanics in the work shop and the sales staff in the store front.

It is a rigid rule that the mechanics must never come into the front showroom unless to install some fixture for display or for similar purposes. In the same way, the sales staff are prohibited from entering the mechanic's section of the building unless on business. This rule is enforced because the firm aims to keep its showroom spotlessly clean and entirely free from any dirt which may come from the overalls or hands of its workmen. It is pointed out that women today represent the largest class of customers and even the appearance or suggestion of the existence of dirt or grease does not add to the goodwill or confidence of a woman customer in a firm.

The showroom on one side is divided by three partitions. The rear booth is furnished like a model kitchen, complete with stove, sink, hot water tank, and similar fixtures. The second booth is used for display of sundry large articles at present, but can be made into a bathroom or kitchen on short notice.

The third booth is directly behind the window, which has no back, and thus permits a clear view of the booth from the street. To one side a bath has been installed. This has been given a side wall at each end and a curtain, while a false ceiling has also been fitted above this bath, and shower equipment installed. A toilet and a wash hand basin are in place in this booth. Extra bathroom furnishings are also displayed. The window has a raised floor about level with the toilet top, and this platform is used for showing bathroom accessories such as towel bars, soap dishes, etc., none of which obstructs a clear view of the model bathroom.

All of these booths are finished in different shades, so that each represents a distinct room. The partitions, and also the division which runs up the floor dividing them from the general showroom space, are about three feet six inches in height, so that a view of the booths is possible from all angles. The partitions dividing the rooms are movable, and can each be fitted into one of a dozen notches, thus permitting the rooms to be any size desired.

The other portion of the showroom is used for the display of gas fired appliances and radiators, while one or two pedestal basins are also shown on the main floor area. To one end is a broad desk with chairs on each side, so that customers can sit in comfort, and look over catalogs and illustrations shown by the sales staff.

The firm handles oil burners, and has installed one of these in a nook to the rear of the store. This is built around but has the front left open so that it not only heats the building, but also is there for display purposes. The nook is in the line of vision from the window, and is illuminated by a special light after closing time.

There is a large and well equipped workshop to the

rear. All the mechanics wear neat blue overalls with the name of the firm worked on the back in red letters. "Service and Efficiency" is the motto of the firm, and the smart appearance of these plumbers and gasfitters in the shop certainly can not fail to inspire confidence.

Mr. Morgan states that the firm aims to do business with owners and builders of better class homes, and being on the outskirts of the business area of Vancouver, and on the fringe of the more exclusive and middle-class residential areas, it seems highly probable that the success which has already favored its operations will continue.

PRICES NOT FOR SALE

He states that "Prices are not for sale," in his store, nor in his workshop. He explains that the firm does not disdain the matter of price, but does not allow this matter to get out of line with quality. He makes a point of basing his merchandising program on the assumption that no price is good unless the merchandise is satisfactory, and he believes that the average customer prefers complete satisfaction to a discontented feeling caused by purchase of a so-called cheap article.

The firm makes customers understand that in its showrooms they can take price for granted as consistent with quality and style, but that no cut-price rates prevail. The aim of the store, customers quickly learn, is to keep living costs down, without also reducing living standards.

While the firm does not sell its merchandise on a price basis, it makes no effort to evade this issue. Quite the contrary is true, for every article in the showroom is plainly marked. The price labels are all neat little black cards, with the price in white figures. These cards are inserted into fumed oak stands and are displayed on all fixtures shown. Small accessories are also tagged.

Oil burners in the Morgan establishment are sold strictly on a quality basis. One of the talking points used by Mr. Morgan is that his firm does not handle cheap oil burners. He makes a policy of stressing the fact that merchandise which he sells is sold on a basis of quality which in the long run, he points out to customers, is the most economical. In proof of this, he stresses the fact that oil burner installations which are completed by his firm will reduce instead of increase the fire hazard. Consequently lower insurance rates will be obtainable instead of increased rates, as is the case in some installations. This point has always been stressed by the firm and has proved of importance in influencing buyers.

In its merchandising program, window displays are given a large place by the firm, and as will already be seen from the foregoing, the entire store is really made an auxiliary to the windows. Direct mail advertising and newspaper space are also used.

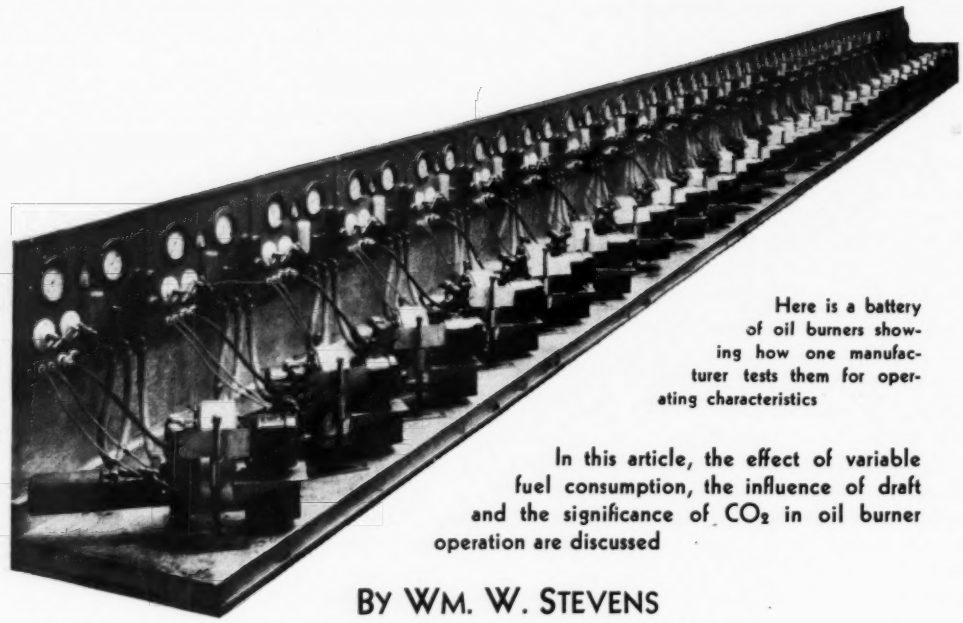
Typical of the direct mail matter used was a blotter headed, "Please read this and keep for future reference." The copy read, "If you destroy this we BOTH lose money." "The purchaser gains where quality reigns." "Our Aim: Prompt Service to all repair work. May we serve your future plumbing needs? Consult us regarding the additional bathroom or toilet you need in your home." It will be seen from this, that one plan of the firm is to develop the market which is already supplied, or following the example of the car dealers who aim to sell two or more cars to a family, this enterprising plumbing store aims to sell two or more bathrooms and toilets to new home builders, and extra toilets and bathrooms to owners of homes already built.

USES HUMAN INTEREST CARTOONS

In connection with its newspaper advertising, the firm has developed a rather unique series of human interest cartoons which have proved of value in attracting public attention and provoking action. These series of cartoons are based along the lines of the comic strips which are a feature of most of the week-end newspapers and in fact of the daily papers at the present time. The cartoons deal with a series of adventures of two characters.

The office and sales staff of the firm numbers three, and there is an average of 15 men in the shop.

Movable partitions help this contractor to vary his displays



Here is a battery of oil burners showing how one manufacturer tests them for operating characteristics

In this article, the effect of variable fuel consumption, the influence of draft and the significance of CO_2 in oil burner operation are discussed

BY WM. W. STEVENS

Oil Burner Research

REFINEMENTS in oil burner installations result only when the one who supervises and plans the work has a thorough knowledge of the many variables involved and their effect upon the final operation of the entire heating plant. Furthermore, the degree of success which is encountered in this field is directly dependent upon the extent of this understanding. In other words, if the individual's knowledge of oil heating is limited, undoubtedly his success in this work will be limited.

THE ADJUSTMENT OF BURNERS FOR VARIABLE FUEL OIL CONSUMPTIONS

Recognzing the need for more complete and purposeful information on the subject of oil burners, a research program was begun several years ago at Yale University, New Haven, Conn., in co-operation with the American Society of Heating and Ventilating Engineers Research Laboratory and the American Oil Burner Association. The work was conducted by L. E. Seeley and E. J. Tavanlar who are respectively assistant professor of mechanical engineering and graduate student and assistant in mechanical enginering at the Sheffield Scientific School of Yale. Periodic reports of progress and findings have been published regarding this from time to time. Helpful information has been given in particular at the semi-annual meeting of the A. S. H. V. E., which was held at Swampscott, Mass., in June, 1931. Certain findings were described which provide the answers to such questions as "What is the effect of draft on the operation of various typical burners?" and "How do various boiler and burner combinations act under varying fuel consumption rates?"

Burners may be adjusted so as to consume various amounts of fuel oil. What are the possibilities in this regard as far as draft and the amount of CO_2 produced are concerned? When oil is burned, CO_2 is one of the products of combustion. The percentage of CO_2 produced and discharged through the flue is an indication of the operation of the burner. If more fuel is supplied to the burner than that which can be burned efficiently, combustion is incomplete and the percentage of CO_2 in the flue gas is relatively lower. In other words, fuel oil is wasted through incomplete combustion. On the other hand, if draft is increased above normal limits, an excessive amount of air is passed through the boiler. This excess air is not used in the combustion of the oil. Instead, it mixes with the products of combustion and

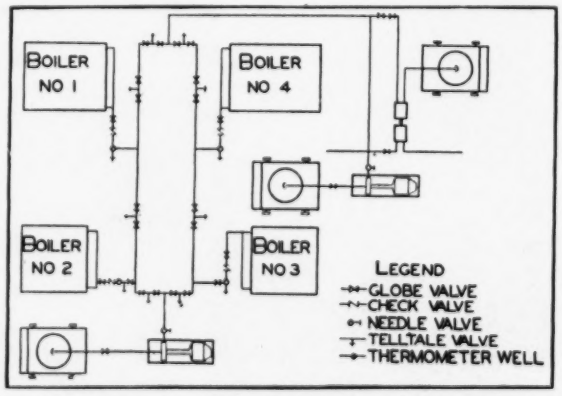


Fig. 1—Diagram of feedwater piping for the test set-up of boilers and oil burners

passes through the boiler flues and out of the chimney with them. In so doing, the excess air is heated by the burning oil with the result that the heat is not available for heating the water in the boiler. This shows the seriousness of excess air. Since excess air dilutes the products of combustion, of which CO_2 is one, excess air may be found by measuring the CO_2 in the flue gas.

From all of this, the question which follows naturally is, how much leeway is there in adjusting oil burners when the desire is to maintain a certain percentage of CO_2 and to operate with a definite draft intensity. This information is important in making oil burners operate economically. The answer is found in the report of the investigations. It is presented in the following:

The tests considered in this article were designated in the laboratory as series A. They were continuous. That is, they were carried on so that the fuel, which was No. 1, was burned continuously at a uniform rate throughout the test. Four oil burners were tested in four different boilers making a total of sixteen runs. The burners were listed as OB 1, OB 3, OB 4 and OB 5, while the boilers were listed as B 1, B 2, B 3 and B 4. Certain operating conditions were fixed in order to be reasonably sure that the burner was performing in essentially the same manner in each boiler. The CO_2 was standardized at 10 per cent. With all burners except OB 5, the minimum fuel burning rate was the lowest rate that could show 10 per cent CO_2 (with a variation of plus or minus 0.4 per cent) without apparent smoke. In other words, if the fuel burning rate had been lowered below the minimum established for each of the burners except OB 5, smoke would have occurred. This would have brought in considerations outside of those desired in the test.

The draft was standardized at 0.02 in. of water. The other tests of this series were run to determine the

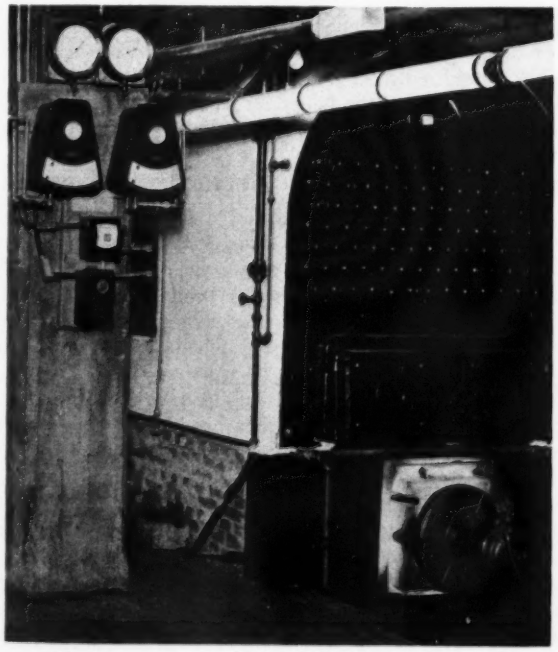


Fig. 2—Here is a view of an installation of permanent equipment which gives the operator information on the operation of the oil burner

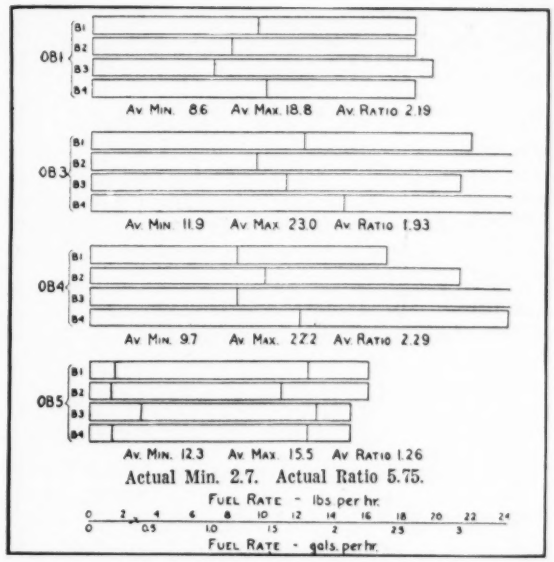

OB1
B1
B2
B3
B4
Av. Min. 8.6 Av. Max. 18.8 Av. Ratio 2.19
OB3
Av. Min. 11.9 Av. Max. 23.0 Av. Ratio 1.93
OB4
Av. Min. 9.7 Av. Max. 22.2 Av. Ratio 2.29
OB5
Av. Min. 12.3 Av. Max. 15.5 Av. Ratio 1.26
Actual Min. 2.7. Actual Ratio 5.75.
Fuel Rate - lbs. per hr.
Fuel Rate - gals. per hr.

Fig. 3—Maximum and minimum fuel rates obtained with 10 per cent CO_2 and 0.02 in. of water draft limits

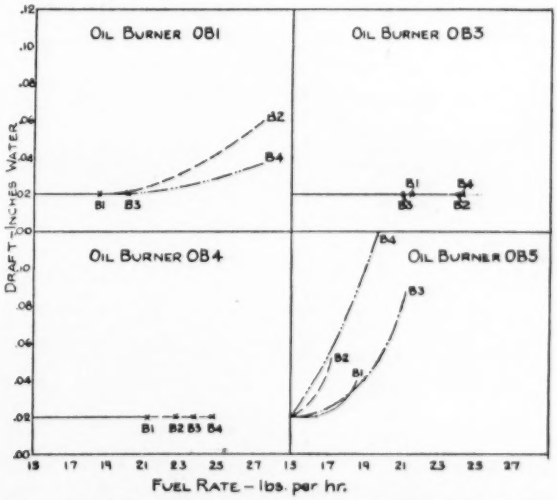


Fig. 4—Graphs showing the relation of fuel burning rate and draft for various oil burners

maximum rate of fuel burning possible with 10 per cent CO_2 and a draft of 0.02 in. of water. It is of interest to know that for further comparative purposes, rates of oil burning which were in excess of the maximum established for the above mentioned conditions were run where the oil feed was capable of an increase. In this regard, the draft exceeded 0.02 in. of water.

AVERAGE MAXIMUM CONSUMPTION IS TWICE AVERAGE MINIMUM CONSUMPTION

The results of the testing are shown summarized in Fig. 3. This chart shows maximum and minimum oil burning rates obtained within the 10 per cent CO_2 and 0.02 in. draft limitations which were arbitrarily imposed. It should be understood that a study of this type requires that some definite CO_2 percentage and draft be chosen in order to be able to made valid comparisons. Also, it should be pointed out that 10 per cent

CO_2 is a reasonable working standard. The results reported in this paper indicate the performance that logically could be expected under the usual operating conditions. The draft may be considered low but it seems desirable. Furthermore, it is obvious that there are maximum and minimum fuel burning rates for whatever percentages of CO_2 and draft that might have been fixed upon. However, both values would shift together in the same direction so that the range or difference between maximum and minimum rates may stay much as shown in Fig. 3.

In Fig. 3, note that the scale is shown at the bottom of the chart. The numerical values above the line are for a fuel rate in pounds per hour while the values below the line are for fuel rates in gallons per hour. It will be remembered that No. 1 fuel oil was specified as that used in the tests. The upper set of bars show the results of operating oil burner No. 1 in each of the four boilers. Accordingly, the top bar shows the effect of operating oil burner No. 1 in boiler No. 1. Also, it shows that the minimum rate under those conditions was approximately 9½ lb. of fuel oil per hour. That is, if the burner had been operated so that it consumed less than 9½ lb. of No. 1 fuel oil per hour, it would have smoked.

In addition, the top bar shows that the maximum rate of fuel consumption was approximately 18½ lb. per hour and this interpreted in another way means that when more than this quantity of oil was burned, the draft exceeded the predetermined standard of 0.02 in. of water. The chart also shows, in regard to the four top bars, that the average minimum for oil burner No. 1 operating in boilers No. 1, 2, 3 and 4 was a rate of 8.6 lb. per hour. Further, it shows the maximum amounting to 18.8 lb. per hour and the average ratio was figured to be 2.19. In other words, the average maximum was 2.19 times the average minimum.

Fig. 5—This portable equipment is being used to determine the performance of the oil burning equipment and boiler

The foregoing explanation might be carried out for the lower three sets of bars covering the operation of oil burners Nos. 3, 4 and 5 in the various boilers. This is not necessary because of the close similarity although the reader should note for his own information the figures.

One variation should be pointed out. The results of the tests on oil burner No. 5 show two minimum values. This is so because the burner happened to be of the continuous operating type. The attempt to go below the standard minimum conditions of 10 per cent CO_2 would cause the CO_2 of any of these burners to diminish. The case of OB 5 represents such a condition. The point of importance in this case is that an operating fuel ratio would have to be greater than the average value of about 2.0 shown for OB 1, OB 3, OB 4, because, due to its continuous operation, this type must possess sufficient flexibility to meet exactly all fluctuations in heating loads caused by weather changes.

The curves in Fig. 4 show another point in relation to maximum fuel burning rates and draft. It will be noted that there are four sets of curves, one for the operation of each oil burner in each of the boilers. The curves in the upper left hand corner are for oil burner No. 1 and the four points are for its operation in each of the four boilers. Note that oil burner No. 1, in boiler No. 2, and operating at a fuel rate of approximately 27 lb. per hour, carried a draft of 0.6 in. of water. In this regard, it should be observed in the case of OB 1 and OB 5 that oil burning rates in excess of 20 and 15 lb. per hour respectively required the draft to be increased. This merely indicates that the increased air required had to be assisted into the boiler by an increase in the boiler draft. Note that OB 3 and OB 4 did not reach such a limit during these tests.

TESTS INDICATE TYPICAL OPERATING CONDITIONS

All oil burners probably would show curves like those of OB 1 and OB 5 if forced sufficiently unless the burner were limited by its ability to supply oil. Incidentally, OB 3 was so limited in this case while OB 4 was not. From a practical standpoint, the curves suggest that oil burner manufacturer's ratings should be made at a point somewhere near the 0.02 in. of water draft value. The fuel rates at the maximum might be increased somewhat with no change in air, thus producing CO_2 greater than 10 per cent, but this increase would be comparatively small at best.

It has been pointed out very definitely that the figures given in these tests represent the operation of specific oil burners in specific boilers. Accordingly, they should not be interpreted as being figures which can be used for any and all burner and boiler combinations. Their value is in the fact that they indicate typical conditions. They should serve as a guide in any approach to the intelligent analysis of the conditions under which an installation operates.

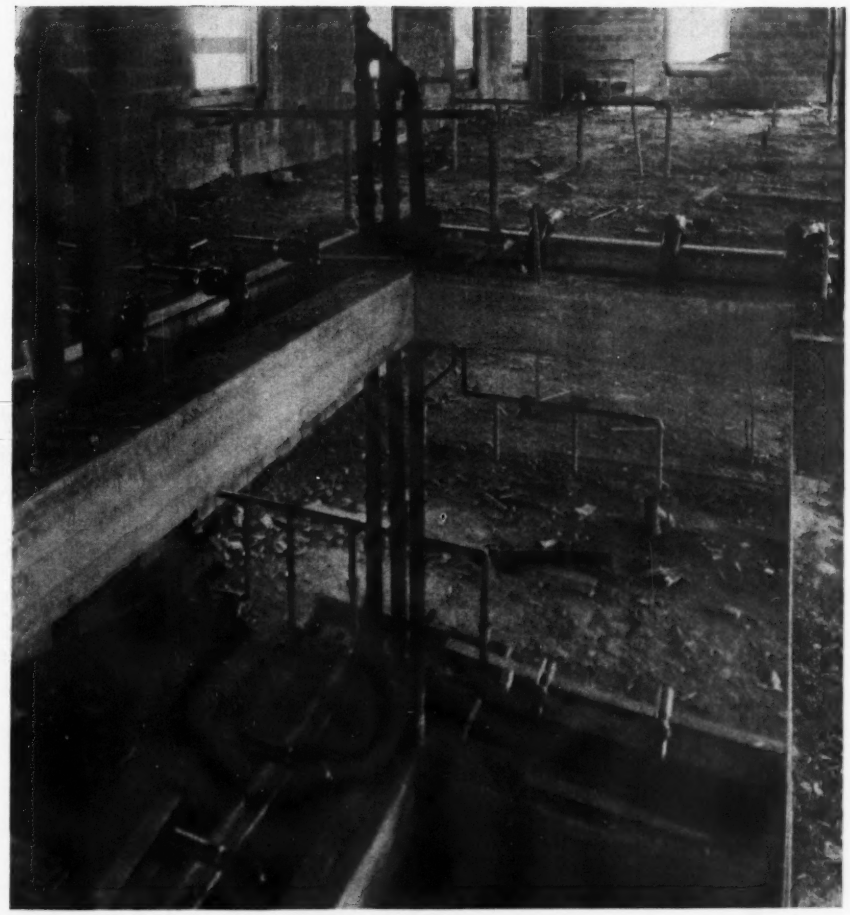


Fig. 1 — This view shows the roughing for the toilet rooms on the two upper floors of the institutional building described in this article

Practical Points on Circuit Venting

By R. M. STARBUCK

THE NATURE of the building, the general use to which it is to be put, and the type of its inmates often must be taken into account in making an intelligent choice of methods and materials that go into the plumbing installation.

For instance, the problem of providing the most effective and efficient service in the large toilet rooms of a railroad station, or of a large hotel, might be entirely different from the problem connected with the same kind of toilet rooms in various types of institutions.

We thought this over quite a bit recently while looking over the roughing for a dormitory connected with an institution for feeble-minded people.

Perhaps the big problem to be handled in connection with the railroad or hotel toilet room might be the handling of the heavy peak load which such toilet rooms have to meet. Most likely it might not be this particular problem at all that the institutional toilet room would have to meet. It is certain, however, that almost always there will be some particular situation that will have to be faced and correctly handled if the best results are to be arrived at in the final installation of the work.

In the case of the institution for feeble-minded, it would be obvious that one of the major problems would be to so install the plumbing that the least possible chance would be offered to the inmates to misuse or tamper with anything having to do with the operation of the plumbing system.

Precautions against dangers of this sort were to be seen at many points. For instance, in the boiler room, or wherever mechanical equipment is located, it was all protected against tampering by heavy wire screens. While inmates would naturally be expected to keep out of such parts of the building, it would be entirely possible for one of them to find his way to a point where the turning of a valve might result in much harm and inconvenience.

This situation applies to the plumbing. In this sort of institution it is wise to conceal as much of the plumbing as possible, and ways may be found for concealing almost everything except the fixtures themselves.

The view in Fig. 1 shows an interesting picture of the roughing for two toilet rooms on the two upper floors

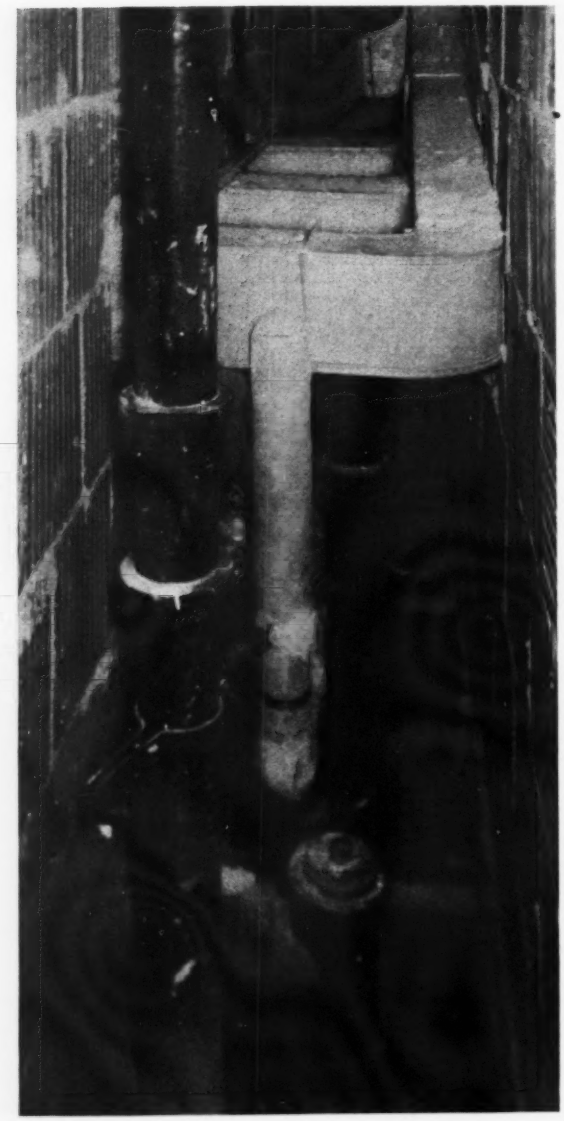


Fig. 2—Utility space or chamber at the rear of each line of water closets. It allows everything to be concealed to prevent tampering. Note that the flush valve is even out of the way. It is just to the right of the front soil stack and below the front ventilating duct. Note also the cleanout

of one of the dormitories for the institution that we have alluded to.

It will be noted that wall-type water closets are to be used, and apparently this particular type of fixture is more adapted to the requirements of such institutions than the floor outlet type. The wall-type bowl can be made fast to the wall, with supply and drainage connections entirely concealed. Moreover, this kind of bowl is open underneath for cleaning purposes, with no opportunity for the collection of dirt about the base of the fixture.

CLEANOUTS FOR EACH CLOSET CONNECTION

A point of interest in Fig. 1 is the cleanout on the waste fitting of each closet bowl. Inasmuch as back of each line of water closets there is a utility space or chamber, as shown in Fig. 2, these cleanouts are accessible in the event of stoppage.

Even the flush valves are placed in these utility chambers. Close inspection of Fig. 2 will disclose one of the flush valves about half way up and down, and just at the right of the stack. This stack, by the way, is the main vent stack into which the circuit vent connects at each floor.

Circuit venting is used in the work shown in Fig. 1. On the second floor, at the center of the picture, three 4-in. soil lines are seen. The one at the left is the soil stack; the middle line is the main vent stack, and the third vertical line is the circuit vent for the upper floor fixtures. The stack at the extreme right is a soil stack, and the one at the extreme left a main vent stack. It seems to us that it might have been practicable to omit the soil stack at the right. If that were done, it would require a loop vent for that line of water closets.

GOOD PRACTICE IN CIRCUIT VENTING

Apparently these circuit vents are taken off the ends of the horizontal runs. It is better practice to take a circuit or loop vent off at some point between the last two fixtures on the line. Then the last fixture will flush the foot of the vent, carrying away any scale that may collect at that point. A general idea of the under-floor work that went into these toilet rooms is to be seen in Fig. 3. This illustration as well as Fig. 1 also shows the roughing for private lavatories, of which there were many on each floor.

In Fig. 4 we show the roughing for a line of water closets serving a top floor toilet room in another building. This building is connected with the same institution that we have already mentioned. Both buildings were started at the same time and were planned by the same architect. Just why he should have called for circuit venting in one building and individual water closet vents in the other we are unable to explain.

Under ordinary circumstances we would favor the use of circuit venting on both of these jobs. In this case, however, we are inclined to favor the individual venting as seen in Fig. 4, over circuit venting as seen in Fig. 1.

We might perhaps get at the point we are trying to make in the preceding sentence, by putting it in another way,—if circuit venting is to be used on the work shown in Fig. 1, the horizontal runs serving the water closet lines ought not to be run so far below the level of the floor.

Whether we are talking about circuit venting or the ordinary continuous vent such as is used on a lavatory, it is all done for one purpose,—to prevent the siphonage of traps. And the nearer to the trap seal the entrance of air from the vent is made, the more effective and the more positive the venting will be. The horizontal lines in Fig. 1 are at considerable distance below the floor,—about the same distance as the horizontal line in Fig. 4, as we recall. It must be borne in mind that in circuit

venting the same pipe that receives the waste must also carry the air that does the venting. That being so, the nearer this vent line (if it may be so called) is to the traps it supplies, the more effective the venting is going to be.

Ordinarily a main vent line is carried above the line of fixtures, as in Fig. 4, but in circuit venting it is actually carried below the fixtures.

Always in circuit venting this last named condition exists, but in the case of wall-hung water closets the condition is of necessity—more extreme, for the outlet of the wall closet comes above the floor rather than below it. The situation can be met, however, by running the horizontal line above the floor level, so that each water closet discharges horizontally into this main line rather than vertically as in Fig. 1.

Inasmuch as all this piping and all these connections in the case of Fig. 1 are to be installed in a work chamber back of the line of fixtures, it would seem that the horizontal soil lines could be run as we have suggested.

It is true that the horizontal line in Fig. 4 runs as far below the floor level as do the horizontal lines in Fig. 1, but in the case of Fig. 4 individual vents are used, and this makes an entirely different situation, for the individual vents bring the air supply in at the highest possible point.

We hope that we have made our point clear. We really feel that in the case of wall-hung water closets it is better to use individual vents, unless the horizontal soil line can be run at a point above the floor level, or at about that level.

The two vertical lines of pipe at the extreme left in Fig. 4 are brass hot and cold water lines.

We have pointed to the use of cleanouts on each water closet connection in Fig. 1. The same thing is to be seen in Fig. 4, only the cleanout here is placed on the lower part of the vent.

The method of ventilation used in these toilet rooms may be seen by referring to Fig. 2. Back of each water closet, in the wall, is a wall register opening into a sheet metal vent duct. Four of these ducts connecting with a main vertical duct are shown in the picture.

THE PITCH OF DRAINAGE AND VENT LINES

Some plumbing codes prohibit horizontal under-floor vents of more than a limited length, and this is a good idea. Two feet is often made the limit.

Not only is the grading of under-floor vents necessary to good work, but the same thing applies to all horizonal vents. It may be taken as a principle which should not be violated, that any vent should throughout its course, so pitch that it will drain back into the trap or the floor connection, as the case may be.

Some plumbing codes call for the running of vent lines that would ordinarily be horizontal or nearly so, at an angle of 45 degrees. This is a difficult requirement to meet, difficult because of the practical impossibility of such construction under most building conditions. We wonder whether this requirement is enforced.

While we have seen that sharp grades of waste and soil lines are not desirable under all conditions, under most conditions they are desirable. When the grade is sharp there is much better scouring action and pipes are able to handle much larger quantities of sewage.

As a general rule, with a few such exceptions as we have noted, drainage pipes should have as great a pitch as it is possible to obtain.

We know of no more striking example of what increased pitch will do for drainage pipes than that shown in the tables of sizes of house drains for sanitary systems and storm water systems, found in the Hoover code. These tables are based on scientific experiment and calculations. They are listed in the tables which appear in the following:

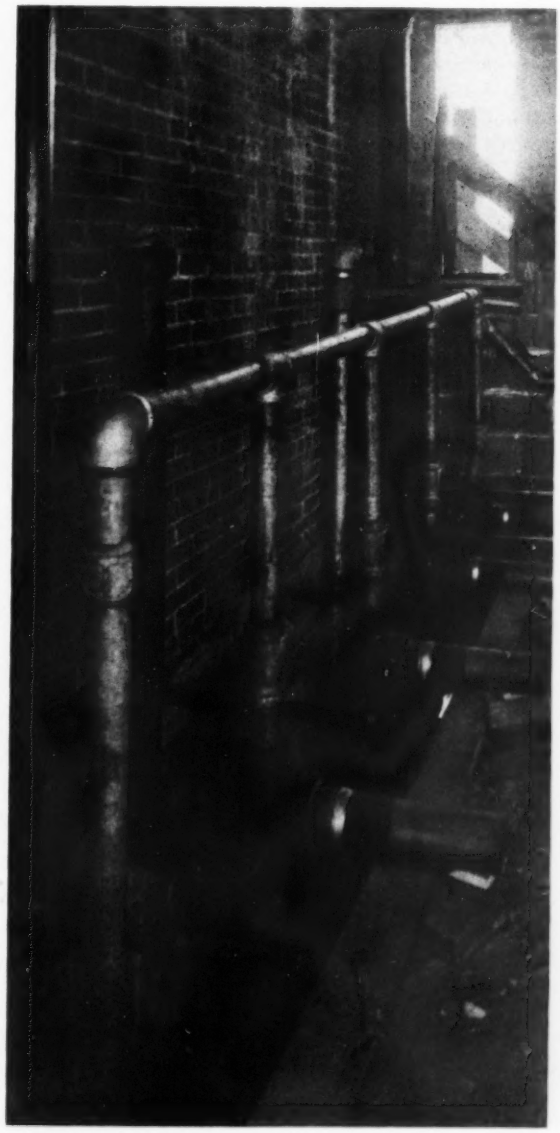


Fig. 3—Roughing for a line of water closets in another building. Just why circuit venting should have been called for in one building and individual water closet vents in the other is not understood. Cleanouts are located in the individual vent lines

Size of Drains, Sewers, and Horizontal Branches.—The required size of sanitary house drains, sanitary house sewers, and horizontal branches shall be determined on the basis of the total number of fixture units drained by them in accordance with the following table:

Sanitary Systems Only

Diameter of Pipe (Inches)	Maximum Number of Fixture Units			Diameter of Pipe (Inches)	Maximum Number of Fixture Units		
	Slope, ⅛ Inch Fall to 1 Foot	Slope, ¼ Inch Fall to 1 Foot	Slope, ½ Inch Fall to 1 Foot		Slope, ⅛ Inch Fall to 1 Foot	Slope, ¼ Inch Fall to 1 Foot	Slope, ½ Inch Fall to 1 Foot
1¼	1	1	1	5	162	216	264
1½	2	2	3	6	300	450	600
2	5	6	8	8	990	1,392	2,220
3	15	18	21	10	1,800	2,520	3,900
4	84	96	114	12	3,084	4,320	6,912

The required sizes of storm-water house drains and house sewers and other lateral storm drains shall be determined on the basis of the total drained area in horizontal projection in accordance with the following table:

Storm Systems Only

Diameter of Pipe (Inches)	Maximum Drained Roof Area (Square Feet)			Diameter of Pipe (Inches)	Maximum Drained Roof Area (Square Feet)		
	Slope, ⅛ Inch Fall to 1 Foot	Slope, ¼ Inch Fall to 1 Foot	Slope, ½ Inch Fall to 1 Foot		Slope, ⅛ Inch Fall to 1 Foot	Slope, ¼ Inch Fall to 1 Foot	Slope, ½ Inch Fall to 1 Foot
3	865	1,230	1,825	8	11,115	15,745	24,890
4	1,860	2,610	4,170	10	19,530	27,575	43,625
5	3,325	4,715	7,465	12	31,200	44,115	69,720
6	5,315	7,515	11,875	14	42,600	60,000	95,000

To note what increased grade will accomplish, it will be seen in these tables that increasing the grade or slope from ⅛-in. to ½-in. per foot, allows more than twice the amount of work to be done in the case of many of the sizes.

There is a circumstance which may arise, in which the desirability of a sharp pitch and its undesirability meet.

As we have stated, it is of advantage to run a main line, a house drain, for instance, at as sharp a grade as possible. However, it often happens that a battery of water closets may discharge into such a line. Under such conditions, it is best not to attempt to use circuit or loop venting, but to employ individual venting instead, where it is possible to do so.

COMBINED STORM AND SANITARY SEWER SYSTEMS

Whenever a combined sewer system is employed, the required size of the house drain or house sewer shall be determined by multiplying the total number of fixture units carried by the drain or sewer by the conversion factor corresponding to the drained area and total fixture units, adding the product to the drained area and applying the sum to the preceding table for storm-water sewers. However, no combined house drain or house sewer shall be less than 4 inches in diameter, and no combined house drain or house sewer shall be smaller in size than that required for the same number of fixture units or for the same roof area in separate systems.

Conversion Factors for Combined Storm and Sanitary System

Drained Roof Area, in square feet	Number of fixture units on sanitary system								
	Up to 6	7 to 18	19 to 36	37 to 60	61 to 96	97 to 144	145 to 216	217 to 324	325 to 486
Up to 120	180	105	60	45	30	22	18	15	12
121 to 240	160	98	57	43	29	21	17.6	14.7	11.8
241 to 480	120	75	50	39	27	20	16.9	14.3	11.5
481 to 720	75	62	42	35	24	18	15.4	13.2	10.8
721 to 1,080	54	42	33	29	20	15	13.6	12.1	10.1
1,081 to 1,620	30	18	16	15	12	11.5	11.1	10.4	9.8
1,621 to 2,430	15	12	11	10.5	9.1	8.8	8.6	8.3	8.0
2,431 to 3,645	7.5	7.2	7.0	6.9	6.6	6.5	6.4	6.3	6.2
3,646 to 5,460	2.0	2.4	3	3.3	4.1	4.2	4.3	4.4	4.5
5,461 to 8,190	0	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.8
8,191 to 12,285	0	0	2.0	2.1	2.1	2.2	2.3	2.3	2.4

Fig. 4.—General method of installing under-floor work. The roughing for the private lavatories also is shown

A Half Century of Plumbing Progress

J. L. MURPHY of New York City, whose individual success as a plumbing contractor has been matched by a record of service to the industry and the public, tells in this article of what American cities owe to master plumbers who forced improvements in design and installation. "Millions of people now living," he says, "owe a deep debt of gratitude to plumbers."

Your comments on his article and on his remarks about a properly individually vented system are solicited and Mr. Murphy will answer you through Domestic Engineering.

UP TO and including 1874, in New York City, sewers and house drains in the interior of buildings consisted of bluestone flags laid on an earth or rock foundation, brick walls built on top of this flag and bluestone flags laid on top of the brick. This made either a square or oblong box, and all of the waste water including human waste emptied into this sewer or house drain.

This sewer was run over to points where the soil or waste pipe connected with it. In other words, all of the horizontal drains in the cellar were composed of this type of sewer or drain. The soil line or waste line entered the sewer from the sides of this drain. When the drain stopped up, there was an opening cut in the side of the drain and it was cleaned out.

PRIMITIVE HOUSE DRAINS

This type of drain was a favorite hiding place for vermin of all types, including rats. They made their hiding place in this drain and when an opportunity afforded itself, which was very often, they roamed around the building at will. All of this vermin carried with it all types of infection to which they are subjected and deposited the infection all over the building. They also deposited infection in foodstuffs. There were also large water bugs and vermin of all types that crawled all over the building. Naturally, the infection carried by these many types of vermin was transmitted to the people occupying the building and these people were subjected to the same diseases that the vermin were subject to.

At this time, there was also in use earthenware house drains and sewers, which were a slight improvement over the flag and brick drains. When a plumber came along and cut a hole in this type of drain to clean it out when it stopped up, that drain afforded a hiding place for vermin of all kinds also, which vermin could roam about the house at will from this earthenware drain or sewer.

There was some light cast-iron pipe used at this time but it was of such a nature that it did not have much merit over the clay pipe. The vertical soil lines on waste pipe were principally of lead or light cast-iron pipe and in some instances earthenware pipe. The trap or water seal was in use at this

time but it was not effective in preventing sewer air from entering buildings due to the fact that there was nothing whatever known of venting or its benefits.

In 1874, a contracting plumber installed the plumbing in connection with a contract that he had in a private house. This particular house was three stories in height. On the first floor of this house in the kitchen, was located a sink and wash trays, on the second floor was located a bathroom and on the third floor was located a bathroom. The fixtures of those three floors emptied into the same soil line. Sometime after the completion of the contract and after the owner had moved into the building, the owner noticed unpleasant odors in the rooms where those fixtures were located. He sent for the plumber who had done the work and explained the condition to him.

The contracting plumber was in a dilemma. He had never before been faced with a problem of this kind, inas much as he had never emptied fixtures from three stories into the one line of pipe. He took a journeyman plumber with him to examine the job and after an examination of the system, the contracting plumber found that the owner's complaint was justified and that there was sever air entering the building.

How to remedy this was a puzzle to the contracting plumber and to the journeyman plumber who accompanied him. They decided they would call a conference of plumbers and explain the situation to them with a view to remedying the condition. They had installed traps or water seals on every fixture in the house and they were under the impression that was all that was necessary to prevent sewer air from entering the building. In fact, up to and including this time it was a common complaint that sewer air entered buildings. Up to that time, there was no known remedy to prevent trap siphonage or back pressure.

HOLD CONFERENCE ABOUT SEWER AIR AND SIPHONAGE

At this conference of plumbers, there were many suggestions made and many experiments to try to remedy the condition existing. One of the men present at this conference suggested that it was due to a change in atmospheric pressure in the interior of the soil and waste pipe. After quite some discussion on that point, they decided to let this man experiment with his theory with the result that he connected to the crown of each trap, or water seal, a ½-in. lead pipe, cut a hole through the outer brick wall of the building and ran that ½-in. pipe through the opening in the wall into the outer air. He did this with every trap in the house and those men were convinced that there was an improvement in the system through this crude way of venting. This is the first record we have in New York City of venting.

At this time, waste pipe and soil lines were run through the roof for the purpose of venting the line but as far as I can learn there was no other system of venting and then and there in New York City was started sanitary plumbing. However, venting thereafter was slow in developing and many systems were tried but not with good results. At this period, plumbing was in charge of the Board of Health and the Superintendent of Health was responsible for the condition of plumbing in New York City. A committee of plumbers waited on the then Commissioner of Health and told him of their investigations. They informed him that it was necessary to make improvements in plumbing and that the health of the American public would be seriously endangered if plumbing fixtures were placed in buildings without some method of preventing sewer air from entering buildings. The Superintendent of Health readily agreed with the plumbers and he took the subject up at many conferences held with them.

THE BEGINNING OF SANITARY PLUMBING IN NEW YORK CITY

Soon after those conferences, the then Superintendent of Health issued an order that he would not permit any flag or brick drains in the interior of buildings. A little later, he issued an order that he would not permit any earthenware drains to be used in the interior of buildings. He also issued an order after several more conferences with the plumbers that it was necessary to vent plumbing stacks, plumbing soil lines and plumbing water pipes. In 1886, an order was issued that all future house drains and sewers in the interior of buildings should consist of extra heavy cast iron pipe and that all rising lines of soil, waste and vent pipe would consist of extra heavy cast iron pipe, steel or wrought iron. The fittings were also to be of extra heavy cast iron. An order was also issued to the effect that venting of all soil and waste pipes was necessary. A regulation was issued to the effect that all rough plumbing such as sewers, drains, soil lines and waste pipes were to be tested with water or air pressure.

Many types of venting were attempted. Among others, loop venting was tried. In loop venting, the soil or waste pipe acts as a double duty pipe. Its purpose is to carry away water and supply air at the same time. In other words, when a fixture is discharged it is necessary to supply a current of air in the interior of the pipe that the waste water is discharged into. Engineers and plumbers discovered that this was not a good type of venting.

When the loop system of venting was first installed, the end of the waste pipe where it connected into the vent pipe was connected about 8 in. above the floor. They discovered when the waste pipe stopped up, as all waste pipes will at one time or another when conveying dirty water, that the loop vent acted as a waste pipe and the waste water backed up through the vent. They then changed that system and connected the vent pipe on the loop system with the main vent stack at a point which was over the top of the highest fixture in the room where the loop vent was used. This was done for the purpose of preventing the loop waste water system from backing up into the vent line when the fixtures stopped up. This was an admission that the system was a failure.

It is admitted by everyone who knows the subject of plumbing that at one time or another waste pipe acting as a conductor of waste water containing grease, soap, oil or human waste will stop up. Soon after a waste pipe is installed the diameter of that pipe changes. It decreases and with the loop system it would naturally decrease to such an extent that the waste pipe would be able to carry away the water from the fixture but would not be able to supply air due to the fact that the diameter of the pipe had changed. The waste materials

having adhered to the interior walls of the pipe decreased the diameter of the pipe and a short time after it was installed it was no longer possible for that pipe to act as a double duty pipe, it acts only as a single duty pipe conveying the water but not the air. In other words, it excludes air.

WHEN IT WAS DECIDED THAT INDIVIDUAL VENTING WAS THE BEST

It was also discovered that at some points close to the loop vent line, the drain had stopped up completely and excluded the air from the remainder of the piping that took away the waste water from the other fixtures. A loop system would be satisfactory if the water passing through that system was clear water and if no materials adhered to the side of the piping. But, as long as the diameter of the pipe changes due to the condition of the fluid passing through the piping, loop systems will not be a success. Loop systems were discouraged after a short trial in New York City.

At the early stages of venting, the building department took over the jurisdiction of plumbing and at many conferences held between plumbers, engineers and the superintendents of building it was decided that the best type of venting was individual venting. It was decided that it was necessary for a vent pipe to retain the same diameter during its life. In other words, if fluids of any type were conveyed through this vent pipe with dirty water, the diameter of that vent pipe would change and it would lose its effectiveness.

The problem that engineers and plumbers are faced with, and it is a big one, is maintaining about an even air pressure in the interior of the plumbing piping of all types similar to the amount of air pressure that is contained in the room where the plumbing fixture is located, and where the waste pipe and soil pipe lines are gravity type, which an overwhelming majority are, about atmospheric pressure should be maintained in the interior walls of all piping. Where an excessive air pressure is developed in the interior of plumbing piping, it will easily blow the water through the seal of the trap or water seal out into the room where the fixture is located, and where the atmospheric pressure in the room where the fixture is located is greater than that of the air in the interior of the plumbing piping, the water is sucked down into the piping system. In both cases, one back pressure and the other siphonic action, when the water is blown outward or inward sewer air freely enters buildings.

The air in plumbing systems changes every time a fixture is used. Excessive pressure is caused by water falling in the interior of piping from a considerable height carrying the air before it to a point where the air attempting to fight its way back through the waste pipe creates a pressure which will naturally go along the line of least resistance and escapes through the nearest outlet in the waste or soil lines. This usually takes place at the lower level of the plumbing system. Air is diminished at the top of the soil and waste line where water is discharged due to the fact that the air can not replace quickly enough the air that has been carried ahead of the water falling. In other words, on the top of the lines the air pressure is diminished and when this occurs the water seal is sucked down into the interior of the plumbing piping. It is the plumber's and engineer's job to see that at all points in soil or waste pipe, the air is evenly balanced or about evenly balanced. They have found after many experiments that the proper way to do that is to protect every trap with a vent pipe so that the vent pipe will supply air where the air in the interior of the piping has been diminished and it will take away air where excessive air pressure has been created.

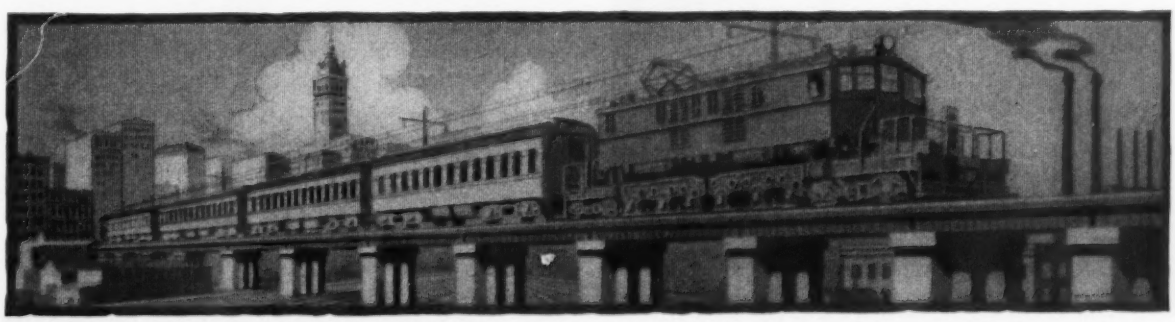
PLUMBING WITHOUT DEAD ENDS

Engineers and plumbers have come to the conclusion that each trap or water seal should have at all times about an even balance, which is atmospheric pressure in gravity systems, in the interior and exterior of piping. In a properly vented system, there is always a current of air flowing through the system and that is due to the fact that there is some heat in the interior of the piping of the average plumbing system. There are no dead ends. In a dead end or an end that is not properly vented, the gas contained in the sewers attacks the interior wall of the piping and its life is shortened. Where there is a constant flow of air, it has been proved beyond any question of doubt that the life of the pipe is protected by the fact that rust does not collect in the interior of the piping thereby protecting the life of the pipe.

All plumbing piping in a building which acts as a carrier for waste waters of any type should be thoroughly vented. The water seal in all traps should also be protected by an individual vent pipe and this pipe should not convey any fluids, it should convey air. It is necessary to maintain the diameter of a vent pipe at the same size the diameter was when it was first installed and this can not be done if any waste water passes through the vent pipe.

There is no way known to modern science at the

(Continued on Page 104)



Plumbing and Heating Contractor

Mr. R. P. Johnson, President,
Johnson Plumbing & Heating Co.,
Wichita, Kansas
Dear Mr. Johnson:

The photographs of your welding on the natural gas line running from Texas to Chicago have been received. We are writing to learn of some of the details regarding this work so that they may be developed in the form of an article describing what you have done.

According to the views which we have before us, you certainly must have had some very interesting experiences. In the first place, we should like to know how you happened to get into this work. Just what part did your previous experience with welding plumbing and heating work play in qualifying you for this bigger job?

QUESTIONS ASKED ON WELDING

What was the extent of your work on this gas line? Was it confined primarily to the compressor station, or did your men also work on the main running to and from the station?

What were some of your unusual experiences?

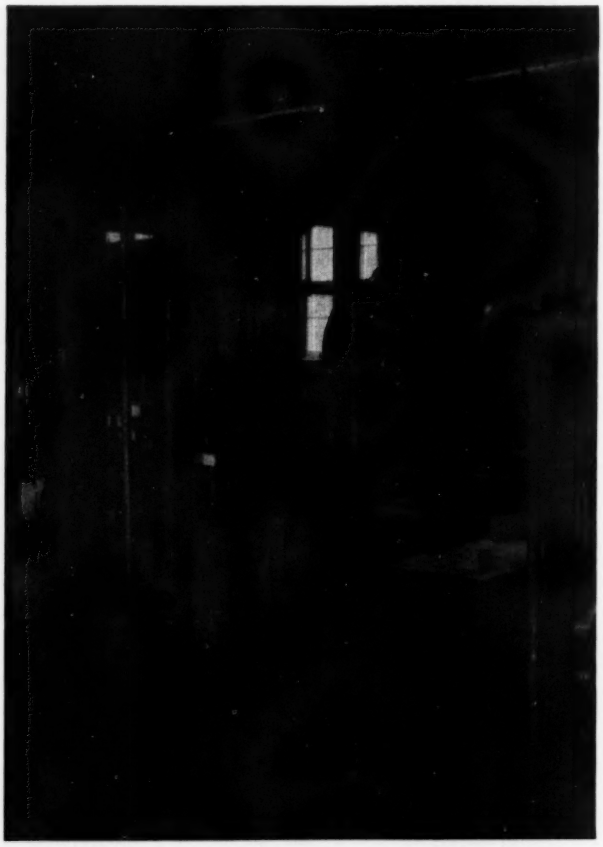
Roughly speaking, how did this work vary from the regular plumbing and heating welding work which you have done in the past? Were you able to use the methods and procedures developed in your regular plumbing and heating work in carrying on the gas line welding work?

How did you test your welds? What were some of the requirements which you were held to?

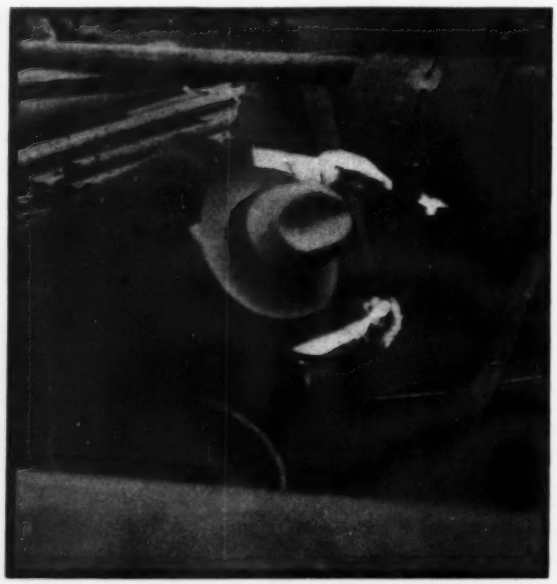
Did you develop any methods in doing this new work which you will be able to apply to your regular plumbing and heating welding in making better installations?

You may write as much as you wish on this subject, as we believe our readers would be interested in learning from you all that you have to tell.

Editor, DOMESTIC ENGINEERING.



"Regarding a photograph showing welds on some of our installation made by us in the Charles Robinson intermediate welded



"Here is a picture of one of our welders making a test weld on our booster station job at Fritch, Texas"

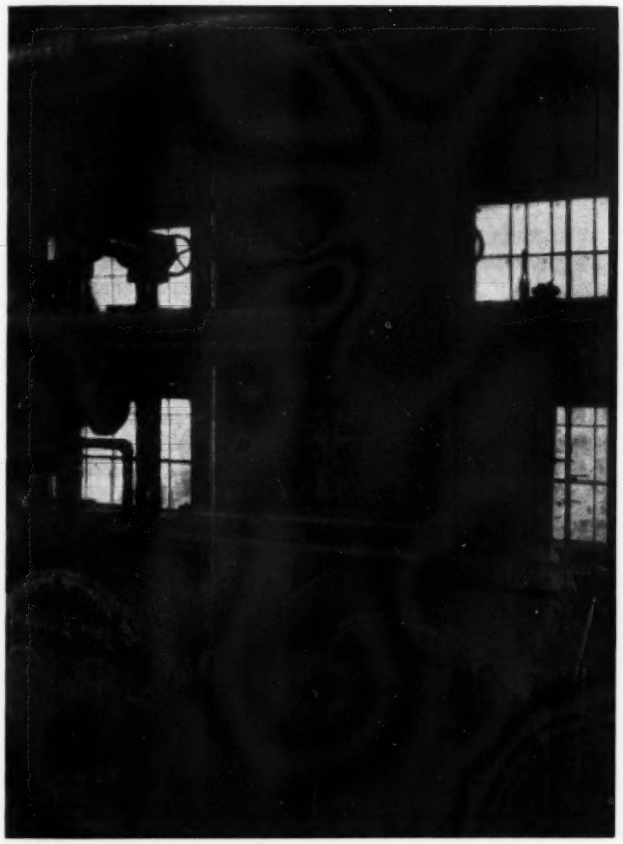
Domestic Engineering,
Chicago, Illinois.
Editor:

Replying to your letter of recent date, I will endeavor to give you all requested information on the Chicago gas line compressor stations, a part of the welding work on which was done by us.

HOW WE OBTAINED THE JOB

When the plans and specifications for the compressor stations on the Chicago gas line were put out by the Continental Construction Co., for bids, the Siedhoff Construction Co., for whom I have done a great deal of plumbing and heating work, received the plans on five of the stations. I was asked by them to figure the pipe work. They were successful in getting contracts for

Welds Big Natural Gas Line



straight plumbing and heating work, this view illustrates an school, now under construction here in Wichita. Note the header"

station No. 5 at Glasco, Kans., and station No. 6 at Beatrice, Nebr., and they awarded the piping contract to me. Both of these stations were under construction at the same time, and when they were nearly completed, plans and specifications came out for station No. 1 at Fritch, Tex. The Siedhoff Construction Co. was the successful bidder on this job, and again I was awarded the piping contract. The No. 1 station is two and one-half times as large as each of the other stations, and covers 80 acres of ground.

OUR EARLY INTEREST IN WELDING

I have always been interested in welding. One of the acetylene manufacturers welded a boiler washing plant for the Santa Fe railroad at Belin, New Mexico, in 1925, and I watched this job very closely. In 1927 I installed the first welded heating job in Wichita—The George Innes Co.'s department store building. In 1928 I installed the first welded heating system in a round house for the Santa Fe at Clovis, New Mexico. So when these compressor stations came out for figuring, I thought I knew the requirements of welding.

My part of the work began with the main gate settings which are located just on the property line of these stations, and included all underground pipe work, the heating systems for the buildings, the sewage disposal system, and the connections to compressors, sump, cooling tower, generators and pumps.

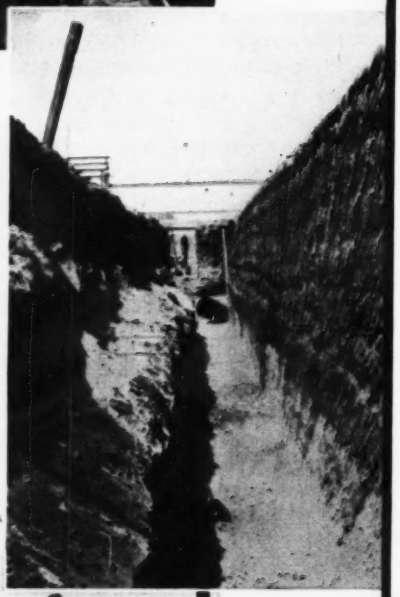
Beginning with the gate setting—there are two 24-in. high pressure wedged gates and one 24-in. stop, the stop being placed in the main line for by-pass purposes. The gas was run from these main gate settings into 24-in. suction and discharge lines and was by-passed at the compressor building. The gas is drawn from the suction line into compressors, each having a capacity of 1,250 hp. There are five twin compressors in all stations except No. 1, which has twelve. These compressors weigh approximately 498,000 lb. each. The gas is discharged into tubular gas coolers which are installed under a cooling tower. The water evaporates in this cooling tower at a rate of about 15 gallons per minute.

THE INSTALLATION DESCRIBED

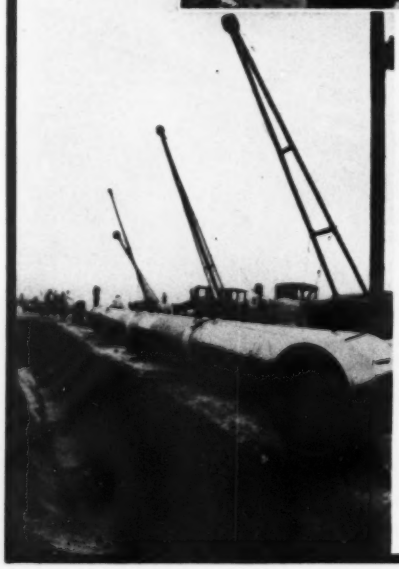
To cool the compressors and gas driven electric generators, water is supplied by electrically driven pumps installed in the auxiliary building basement. In the No. 1 station there is a 50 ft. by 50 ft. sump. There are two 36-in. lines running from the sump, one to supply the six pumps with 12-in. suction and 10-in. discharge lines and the other to take the water from the cooling jackets on the engines and return it to the sump. There are two 30-in. lines running from the auxiliary building, one supplying the cooling tower, the other the cooling water

This view shows examples of several different types of welds made in a piping installation

These are progressive pictures. At the left is shown the work of digging the ditch for the pipe line



These lines were lowered in sections 180 ft. long, weighing approximately 28,000 lb. each. Here the ditch is ready to receive the line



"I believe that the most difficult part of the work was lowering the 36-in. lines into the ditches"

for the engines. All buildings have down spouts of steel pipe running into the sump.

All pipe 24-in. and under is seamless drawn tubing, 15 per cent overweight. All fittings for free air, exhaust, water and waste connections were formed and welded on the job. All of the buildings are heated with steam, screwed fittings being used on these heating systems. All valves 2-in. and larger are flanged with companion flanges welded inside and out. The 24-in. suction lines and the 24-in. discharge line—in fact, all high pressure gas lines—were electric welded. The bends on both suction and discharge lines, as you will note in the photographs, are radius bends. These were factory made. The depth of the lines was from 20 ft. 6 in. underground to 80 ft. in the air over the cooling tower. All piping below the ground was primed and given one coat of bitumastic enamel paint at 500 deg. Fahr.

There were 1,288 tons of pipe, fittings, and valves installed in the No. 1 station. The heaviest valves weighed 6,400 lb. each. The time limit was 120 days, with a $20,000 penalty. With the co-operation of two engineers and five foremen, who were overseeing about 125 men, the installation was completed about three weeks sooner than necessary. The equipment used consisted of five large trucks with winches, one caterpillar tractor with side winch, two ditching machines, three 400-ampere and two 600-ampere arc welding machines, fifteen acetylene welding sets with two 100-lb. carbide generators, and scores of picks, shovels, etc.

I might say that the testing began with the selecting of the welders. All welders were required to pass an examination which consisted of making a bell-hole weld, or in other words welding from the bottom, sections of pipe which were cut into strips one inch wide and about 8 in. long, and it was necessary that the pipe break without the welding material being built up more than ⅛ in. above the pipe. The welds on the installation were tested in the same manner. Coupons were cut from the welds where chosen by the inspectors and were subjected to a pulling or tension test. It was necessary for the pipe to break rather than the weld. Others underwent the bending test. This was bending the coupon to a 45-degree angle at the weld without showing oxidation or the weld breaking. No rivers, pin holes, or oxidation was allowed on any joint, whether under pressure or not. The discharge line was tested out at 800 lb. pressure. It was necessary that each line be exactly in alignment and in elevation in order that the lines would not conflict with each other.

THE MOST DIFFICULT PART OF THE WORK

The entire project was very interesting, and of course there were a great many experiences which are not met with in plumbing and heating installations. I believe that the most difficult part of the work was lowering the 36-in. lines into the ditches. These lines were lowered in sections 180 ft. long, weighing approximately 28,000 lb. each. You can see by the pictures how the hoists on the trucks were operated in unison to prevent straining the pipe or welds. The exactness and the speed with which the installation was made was astonishing.

And now for the welding. Welding is still in its infancy, and I will say that welding as it is used on the ordinary heating job in buildings, while it will hold the low pressure that it is required to hold, is not welding.

And, I would place the per cent of welders who are capable of doing first class work at about 10 per cent; for although they may be capable of putting on 100 per cent welds, they soon may become careless and slight their work. We tried out over 300 welders on the No. 1 station alone and not more than 25 per cent were able to pass the examination and only three stayed through the job. The arc welders were required to pass the same examination as the acetylene welders.

Very truly yours,
The Johnson Plumbing & Heating Co.,
R. P. Johnson.

This work which has been done by Mr. Johnson's organization stands out as a noteworthy example of what an enterprising plumbing and heating contractor is capable of accomplishing in line with his regular activities. His installation formed an integral part of the entire project, which covered the piping of natural gas from mile-deep caverns in northern Texas where it has been confined for hundreds of thousands of years, thence through farm lands and swamps, under rivers and over hill tops, through Oklahoma, Kansas, Nebraska, Iowa and Illinois and finally to Chicago. The total cost approached $75,000,000. In all 6,500 carloads of 24 inch steel pipe were used. To lay the pipe required the labor equivalent of 2,500 men, working every day for a full year.

The pipe is buried in a 1,000-mile trench five feet deep, involving the removal and subsequent replacement of enough earth to make a solid mound 25 ft. wide and 15 ft. high from Chicago's Loop to Waukegan, Ill.

Every square inch of the line has been covered with a protective coat of paint. Many miles of it are sheathed with asbestos paper as an additional safeguard against corrosion.

In its passage through swamps and under nearly 100 rivers, including the Mississippi and Missouri, the great line is weighted down every 20 ft. with heavy cast iron saddles to prevent its rising to the surface.

HOW THE GAS IS PUSHED ALONG

Compressor stations, ten in number, each costing about a million dollars, maintain pressures up to 600 lb. per sq. in. in order to propel the gaseous fuel on its long journey to the shores of Lake Michigan.

Around each of the ten stations, because they are many miles from existing communities, has been built a village of comfortable modern homes to house the station personnel and their families. These are the men who operate the great 1250 hp. gas engines, five or more to each station, the cooling towers, where the gas is robbed of the heat caused by compression, the dust separators for dry cleaning the gas on its long journey, and the other auxiliary equipment.

At these stations live, also, the men who constantly patrol the line, on the alert for leaks and trouble of every kind. It is possible that their vigil will be aided eventually by airplane flights along the line.

In a Chicago office building now sits a man who is in communication day and night, over a thousand mile telephone line, with the superintendent of each station and with the operators of the field itself in the Panhandle district of northern Texas. Like a train dispatcher he controls the flow of traffic through the great system under his charge.

"You can see by the pictures how the hoists on the trucks were operated in unison to prevent straining the pipe or welds"

"The exactness and the speed with which the installation was made was astonishing. The time limit was 120 days with a $20,000 penalty"

All piping underground was primed and given one coat of bitumastic enamel paint at 500 deg. Fahr.

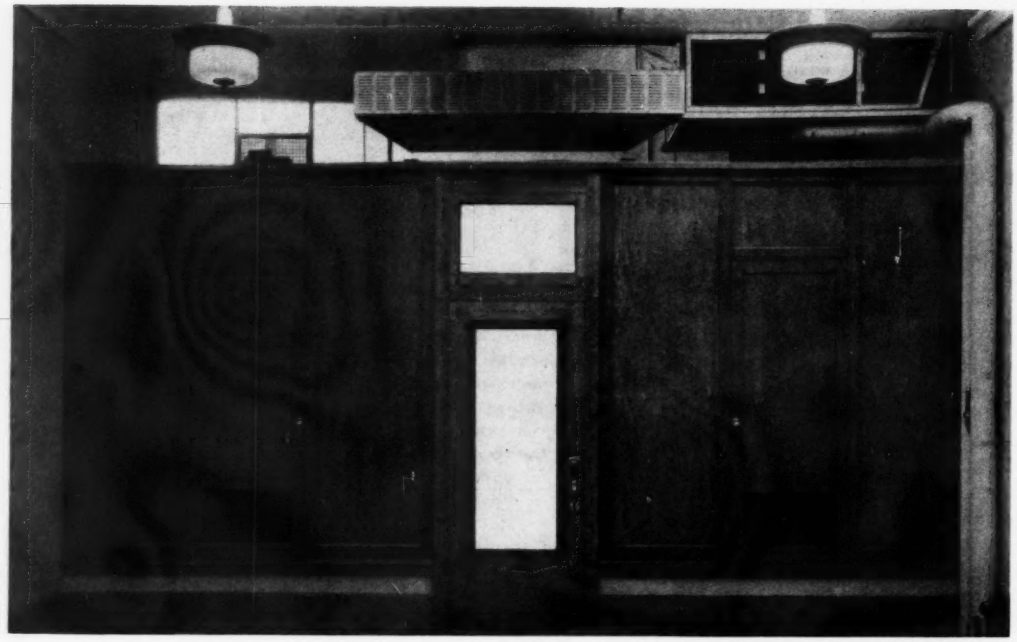


Fig. 1—This is a view of the interior of the store showing the entrance and the air conditioning equipment located over the door and show window. The outlet grille is shown at the left and through it, cool, dehumidified air is blown into the store

Air Conditioning for Stores—New Method Is Demonstrated

LAST week, an air conditioning installation in a test store in Newark, New Jersey, was placed in operation. The idea in back of it was to demonstrate under actual operating conditions, what can be done by way of making air conditioning available to the needs of many small types of business establishments such as stores, restaurants, tea rooms and gift shops. The test was carried on by the Carrier Engineering Corp.

An interior view of the store with the equipment installed is shown in Fig. 1. The building is typical, being 55 ft. by 20 ft. by 13 ft. and representing 14,300 cu. ft. It was surrounded with a shed so that it would be possible to duplicate at will any outside weather conditions in the space between the shed and the store building. Over the entrance door, in space which is unused in most small stores, a series of cooling coils, an air filter and a blower for distributing the air are located. The unit also contains heating coils and a humidifying chamber for use in winter. One end of this unit is connected to an air diffuser outlet which is designed to eject a volume of air at a high velocity horizontally over the store. This outlet also is shown in Fig. 1.

For summer cooling, a refrigerant, generated in the separate apparatus shown in Fig. 3, is circulated through the cooling coils. The blowers draw air across these cold coils and distribute it through the outlet into the store. Contact of the air with the cold surface of the coil cools and at the same time dehumidifies the air. A system of dampers regulates the column of air handled and also admits outside air for ventilation purposes. This regulation controls the amount of cooling done in accordance with requirements.

The refrigeration for the cooling coils is produced by an application of the well known principle that water in a vacuum will evaporate or boil at much lower temperatures than under ordinary conditions. A jet of high velocity steam is passed over an opening into a tank in which ordinary tap water is sprayed, and in so doing, it draws a vacuum on this tank by sucking out the air and the water vapor given off by the water. The result is that the water begins to boil at a temperature approximately 40 to 50 deg. Fahr. The water vapor given off in this process is entrained by the steam and the resultant temperature of the water remaining is sufficiently low, about 40 deg. Fahr., to become a medium for cooling the coils.

This cold water is then pumped out of the tank and through the cooling coil where it cools the air and is then returned to the tank for re-cooling by the steam ejector method. It should be understood that steam need not be the only means of generating refrigeration as other types of refrigeration compressors can be applied.

To determine the operating effect of this system on the store, the areas in the shed surrounding the store proper was heated until the temperature and the humidity represented the typical sultry conditions met with in summer. The actual temperature ranged from 95 to 98 deg. Fahr., with a high relative humidity. With these conditions in effect, it was found possible to create a cool and comfortable temperature inside of the

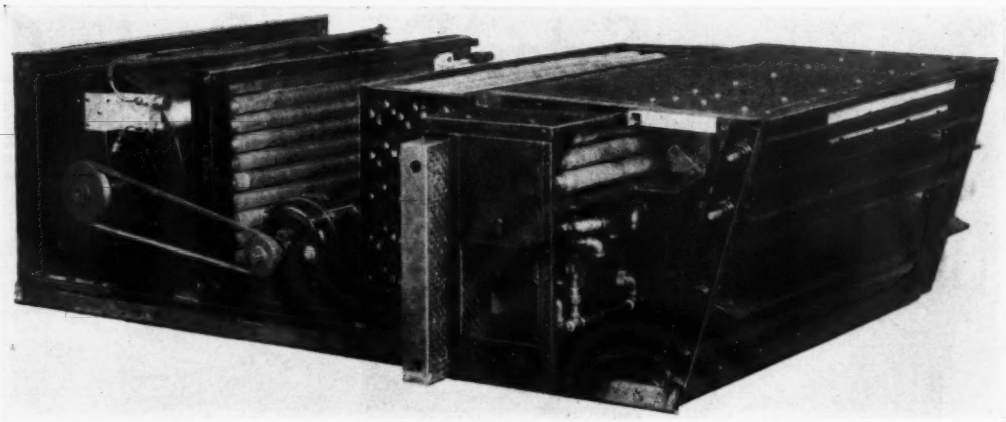


Fig. 2—The view at the right shows the motor for operating the blower, coils, filter section and inlet dampers on the end of the unit

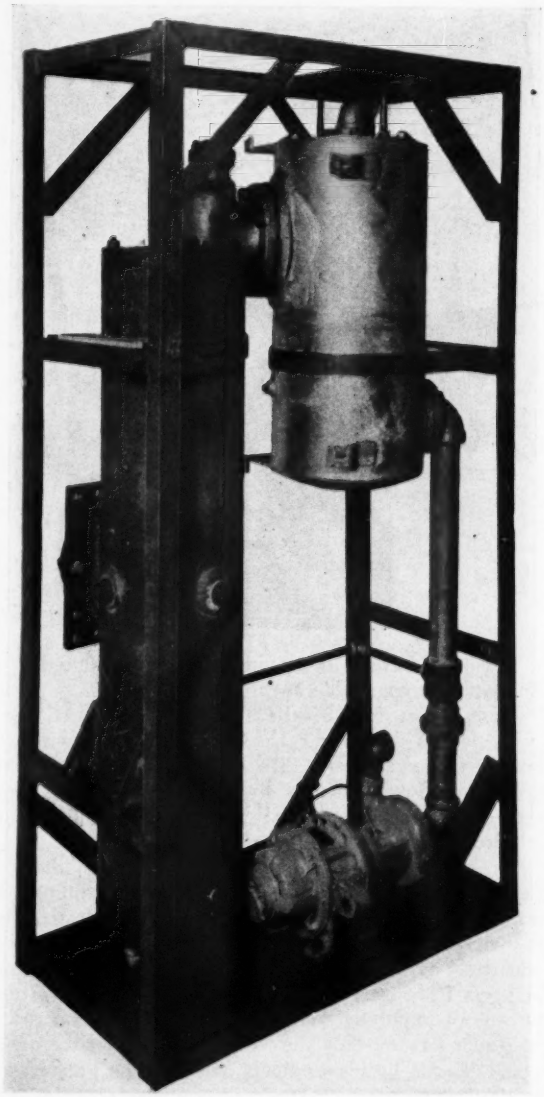


Fig. 3—This equipment uses steam for energy for refrigeration and water as the refrigerant. It is connected to the cooling unit from any convenient remote point

store by lowering the inside temperature about 15 degrees. Accordingly, the inside temperatures ranged from 80 to 85 deg. Fahr. with a relative humidity of 50 per cent as against 75 per cent relative humidity in the shed. The nature of the outlet through which the conditioned air was introduced into the store was such that the quantity of air circulated within the store was 2½ times the quantity supplied by the unit. The unit installed was rated at 6 tons of refrigeration capacity and it handles 1,600 cu. ft. of air per minute.

Air conditioning may be defined as the science of controlling four fundamental characteristics of air (1) Temperature (2) Humidity (3) Cleanliness or purity (4) Distribution or circulation.

To provide comfortable conditions within a building summer or winter the air must be:

In Summer	*In Winter*
Cooled	Warmed
Dehumidified	Humidified
Cleaned	Cleaned
Circulated	Circulated

And in both seasons, a sufficient supply of outside air introduced for ventilation purposes.

Under summer conditions if the air is cooled only, it will be clammy. It must be dehumidified to be comfortable. If circulated only no appreciable cooling effect can, as a general rule, be secured. Cleaning is desirable to insure dustless, germless air.

The essential elements of a system for air conditioning in summer call for a properly designed fan to move the air, a cooling surface (coil or spray) over which or through which the air must be circulated, filters or washers to remove dust particles, and a suitable outlet for distributing the air evenly throughout the space to be conditioned.

By contact with a properly designed cooling surface (either coils through which a liquid or gaseous refrigerant is pumped, or a spray of refrigerated water), hot, humid air is cooled and in the process, gives up a percentage of its moisture content. Adsorption agencies may be employed also for dehumidification purposes. Filters generally are placed in the air stream ahead of the cooling surface to remove dirt. The final result is clean, cool, dehumidified air properly and scientifically distributed into the spaces to be conditioned.

Sales Drive Brings Orders

BEIER BROS.
PLUMBING AND HEATING
743 SELBY AVENUE
SAINT PAUL, MINNESOTA

February 5, 1932

A few plumbing suggestions that will save you money!

1. Avoid cheap work and cheap materials. Good plumbing, like good clothes, is more durable and satisfactory and costs less in the long run.
2. Make your orders clear in telling the plumbing dealer what your troubles are. This will reduce labor and expense.
3. Don't let the "handy man" do your plumbing. He means well, but his work often has to be done all over again. Makeshift work is always disappointing and often deadly
4. Do business only with a dealer of known responsibility and permanent establishment. He will always advise you to your advantage

Fifteen years of experience have taught us these things. We are glad to pass them along to you

Yours very truly,

BEIER BROTHERS

Per:

"AGROUP of plumbing and heating contractors, gathered the other day in an Indiana hotel, enthusiastically sang a parody of Eddie Cantor's famous song. But instead of "tomatoes being cheaper," these contractors were telling their listeners that "building is cheaper."

That same message is being offered to a price conscious list of customers by readers of DOMESTIC ENGINEERING in all parts of the country. The opportunity to tell a definite and new message that labor has voluntary reduced its scale and that material costs are at the lowest point in years, is being grasped by hundreds of energetic dealers. And reports reaching the editor of this publication, show that business is being secured.

For instance, a Massachusetts reader, a copy of whose sales letter was received too late for use in these pages, tells us that "We mailed out 500 of these with very good results, as you can't expect to be busy these days if you just sit in the office waiting for the phone to ring, swearing because it doesn't and keep on talking about depression.

"There is always a certain amount of work to be done in our line of business, regardless of conditions, and a certain class of people are just waiting for some little thing to happen before they have it done. By letting them know that material and wages are lower it might be just the thing they have been waiting for before having their plumbing and heating systems put in a sanitary and comfortable condition. So we believe it 'pays to advertise,' especially now."

The letters on these pages are being used by the contractors whose names appear on the letter heads. Like those on pages 22 and 23, these men are pushing hard on the keynote of lowered costs for materials and for installation.

The Plumbing and Heating Industries Bureau at Chicago has lately been both preparing and multigraphing letters for contractors and a number of those reproduced were taken from the Bureau's most recent files. The emphasis placed upon reduced costs is made at the request of the contractors and the growth of the movement is indicated by the geographical spread illustrated, taking in the eastern, the middle western and northern states.

"Now is the time to modernize."

"Bathtubs are on the bargain counter."

"Are you aware of the savings you can make today on Plumbing Purchases?"

These are a few of the themes upon which these timely letters are being based. And along with the thought of lower costs, these contractors are sounding the note of doing business with established firms whose work can be relied upon and the quality of whose materials is not open to doubt.

Another advantage that rests in the hands of the contractor today is the change in design of plumbing and heating materials which has brought new and attractive products on to the market. The experience of other industries shows the value of style changes and manufacturers have used recent months to add to the attractiveness of plumbing and heating products. As a result, the dealer has not only the cost reduction, but the added appeal offered by his products and also the greater efficiency of his labor.

"Now's the time to modernize" is a salable idea which has brought business to many contractors during the past few weeks and will help many more as the movement spreads.

for Plumbing and Heating

DAVID S. SANDERSON

PLUMBING AND HEATING

February 24, 1932

How is the time to modernize. Your bathroom is the place. Or your kitchen, or heating system. And, we are the party to call to get that modernizing done. (Clearbrook 1770)

Why?

Because we can give you the best prices on fixtures
Because we can give you the lowest rate on labor.
Because we can do an expert job of installation.

Why?

Because fixture prices are the lowest they have been in 19 years.

Because labor has been reduced -- journeymen in our trade have taken a voluntary 20% reduction -- to help keep the building trades progressing, and incidentally save you money on immediate modernizing.

Because we have done business in your neighborhood for fifteen years, and have many satisfied customers among your neighbors

There isn't a cent of charge for your inquiry. Telephone us -- mail the enclosed card -- come in and talk it over. One of our firm members -- a plumbing expert -- will be glad to answer your questions and give you suggestions

We want to help you take advantage of present modernizing prices. It's to our benefit, too. Won't you give us a chance to prove we mean it?

Modernizingly yours,

DAVID S. SANDERSON

Per:

GOHEEN PLUMBING & HEATING CO.

126 Lincoln Way East

MISHAWAKA, INDIANA

Phone 5-0330

Bathtubs are on the bargain counter!

Not only bathtubs, but sinks, lavatories, closets, faucets, shower-baths, in fact, all plumbing fixtures are selling at prices that haven't been equalled for 19 years.

Plumbing prices have hit bottom--the bottom of the 1913 price level --43 per cent below the prices prevailing in 1920. And labor, too, costs less and is more efficient. These prices won't last!

Don't delay your plumbing repairs and replacements any longer.

If you have been thinking for years of converting a clothes closet, a hall end, or part of a bedroom into an extra bathroom or lavatory, by all means have it done NOW.

BUT DO NOT FORGET that quality in plumbing is important. There are two essentials of trouble-free plumbing; quality materials made by reputable manufacturers and good installation by a reliable contractor.

Many people overlook one or both of these points. They have the erroneous opinion that plumbing is plumbing wherever you buy it and that all plumbing contractors do work equally well.

Unfortunately that is not the case. Plumbing fixtures can be cheapened in the manufacturing process just as anything else. Reputable manufacturers, however, who sell only through plumbing contractors, make only merchandise of high quality. We assure you of quality in everything from the smallest repair job to a complete multi-bathroom installation, and at a low price.

Gladly, without obligation to you, we will call and discuss your plumbing needs with you.

Yours for Service,

GOHEEN PLUMBING & HEATING CO

Per.

SPEND FOR THE HOME IN 1932

Buy Plumbing & Heating

HARRY N. SPRENKLE

Experts in P
Heating Ser
and Gas A

8722 KE
13322 EAST
DETROIT M

March 1, 1932

A Missouri woman, claimant to a part of the $10,000,000 Kendel estate in New York, said recently, "If I get just a small part of that fortune, I'm going to have a house with plenty of bathrooms."

Her ideal is a bath with every bedroom. Many people feel the same way about the number of bathrooms they would like to have. There probably never was a house built that had too many bathrooms.

Possibly you have a bathroom shortage in your house. If you do, there never was a better time than the present to have an extra bathroom installed. You can buy the plumbing fixtures for 25 per cent less today than you could a year ago. In fact, prices are down to the 1913 level.

Labor, too, is working for much less today and is very efficient.

It is surprising how easy it is to find the space for a bathroom. Closets, parts of bedrooms, hall-ends, and other similar places will make convenient bathrooms that enable the family routine to move along more smoothly

Perhaps you don't need another complete bathroom but only a downstairs lavatory; or perhaps a shower room.

We shall be glad to step over to your home to make an investigation of the extra bathroom possibilities. You would be under no obligation in just getting an estimate of the work.

Why not call today -- right now -- and arrange an appointment?

Phone Lonox 3214

Sincerely yours,

HARRY N. SPRENKLE

Per:

FETTES, LOVE & SIEBEN

PLUMBING CONTRACTORS

4105 NORTH DAMEN AVENUE

TELEPHONE LAKEVIEW 7627

CHICAGO

Are you aware of the savings you can make today on Plumbing Purchases?

High grade plumbing fixtures, with a national reputation, are selling at new low prices that we did not believe could be made. See the circular we are enclosing for you, and compare the new prices with those that prevailed a few weeks ago. In addition the price of labor has now been reduced by 20 per cent. What an opportunity for you to modernize!

You can get beautiful fixtures of modern design -- with added facilities that afford you every convenience -- at prices that are no higher than those you paid for most of your old fixtures

You can now afford to give your family the plumbing conveniences that they deserve. A new bathroom! A downstairs lavatory! An extra water closet! A modern, useful sink! A shower bath!

Remember, too, that every additional bathroom adds $600 to $1,000 to the value of your home, or apartment building. That means you'll be making a profit by putting in an extra bathroom now.

Come in and visit our show room. Call us today -- LAKEVIEW 7627. Estimates and information will be cheerfully given, without obligation to you.

Cordially yours,

FETTES-LOVE & SIEBEN

Industry Gets Back of Sales Program

IT IS a fortunate circumstance for plumbing and heating contractors that they have a campaign at their command which ties in perfectly with the new sales opportunities made possible by the reductions announced in wages in the building field. The "Spend for the Home in 1932" campaign, inaugurated by DOMESTIC ENGINEERING, offers a powerful movement, growing in strength every day as many interests in the building and home furnishing fields take it up, to assist the merchandiser in our industry to keep his sales volume up during this year.

In the March 5 issue of DOMESTIC ENGINEERING, we tried to give a comprehensive review of the progress made by the "Spend for the Home in 1932" campaign. But space did not permit us to quote from all of the letters received, nor give in full all of the uses to which the stickers, posters and electrotypes, all bearing the slogan, are being put.

We gave a list of almost three hundred newspapers to which, regularly, statements are being issued on the campaign. First came the statement from Oscar W. Rosenthal, president of the National Association of Building Trade Employers, and executive of a number of other organizations in the construction field. Then we released a statement from W. J. Spillane, president of the Central Supply Association and sales manager for James B. Clow & Sons Co.

In the week beginning March 21, we sent out a statement from Col. Frank Knox, publisher of the *"Chicago Daily News"* and chairman of President Hoover's Citizens' Reconstruction organization, in which he said, in part: "I think that this effort to win home owners to the use of money in making their homes more comfortable and convenient may be considered an important effort among those who undertake to improve conditions in the business world."

In these pages will be found a reproduction of our first release as it was used, in full, in one of the newspapers on the list to which we are sending this material.

The two pictures show how the Civic Building Service Bureau of Portland, Ore., which calls itself "A voluntary organization designed to meet an emergency situation," has worked the "Spend for the Home in 1932" material into its own efforts. In the very front of the window display you see the window card, and on the

SAYS AMERICAN PEOPLE HAVE NOW COME HOME

Rosenthal Sees Great Renaissance in Home Making

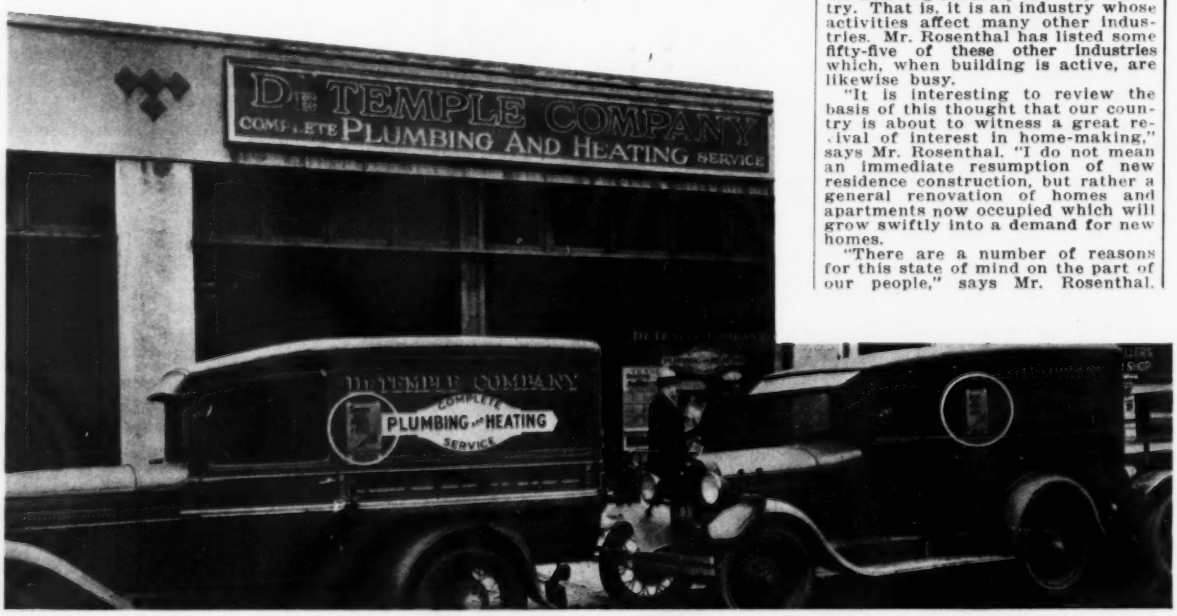
Chicago, March 5.—"The American people have come home," says Oscar W. Rosenthal, president of the National Association of Building Trade Employers. "I believe that we are about to witness the greatest renaissance in home-making that this country has ever known."

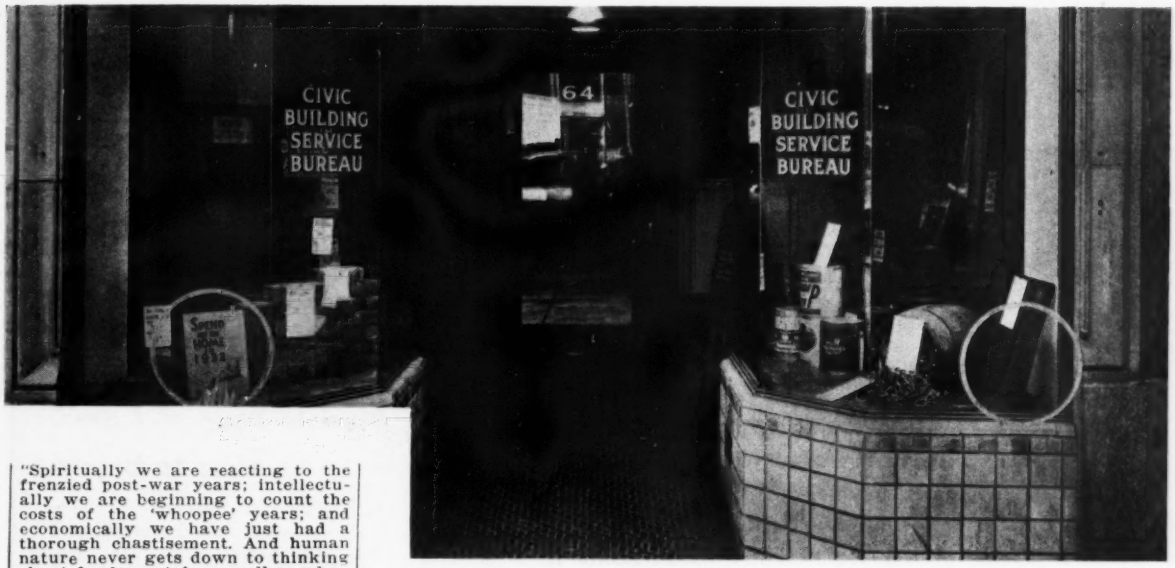
The statement is of particular interest at this time, because most financial authorities are agreed that the building industry is a key industry. That is, it is an industry whose activities affect many other industries. Mr. Rosenthal has listed some fifty-five of these other industries which, when building is active, are likewise busy.

"It is interesting to review the basis of this thought that our country is about to witness a great revival of interest in home-making," says Mr. Rosenthal. "I do not mean an immediate resumption of new residence construction, but rather a general renovation of homes and apartments now occupied which will grow swiftly into a demand for new homes.

"There are a number of reasons for this state of mind on the part of our people," says Mr. Rosenthal.

How a Portland, Oreg., contractor uses the posters on his trucks





Portland's bureau for developing business finds the posters useful

"Spiritually we are reacting to the frenzied post-war years; intellectually we are beginning to count the costs of the 'whoopee' years; and economically we have just had a thorough chastisement. And human nature never gets down to thinking about fundamentals so well as when it is on its way back from the woodshed.

"All of the many forms of amusement to which we turned in the years after the war—from movies to the cabarets and roadhouses—have suffered. Loss of positions, reduction of salaries and incomes from investments, uncertainty of the future, all have conspired to slow down the spending, not only of the older crowd that reached maturity during the war, but of the younger crowd that came to so flaming a maturity in the post-war years.

"All this has thrown thousands of people back upon their homes and apartments. And, perhaps for the first time in years, they are looking at those living quarters with a critical eye. For now they must center their social life in their homes and apartments.

"It's going on now all over the country. As one business acquaintance said to me: 'At a time like this a man has a tendency to draw in his lines and to dig himself in at home—the source of his strength.' With social life once more centered on the home, the home is going to come into its own and there will be more charm in entertainment than feverishness. Perhaps even the art of conversation, buried for a decade under the blare of jazz bands, will be re-discovered.

"If the men who have thought most profoundly on matters of national life and interest are correct, the home is the test of any civilization—the backbone of our country, as it used to be called. This being true, we may expect that the new interest of America in its homes is going to have a profound influence on our history in the next generation. The American people have come home—and that means that first our homes, and then our national philosophy are going to get an overhauling."—*Peoria Star.*

facing page is the photograph of the truck of a plumbing and heating company, one of many contractors who received these posters from this organization.

In Providence, R. I., the Phillips Lead and Supply Co. have been using the slogan "ever since you have brought it out, having it for a headline for all of our newspaper advertisements," as H. D. Nickerson, secretary of the company, writes: "We purchased a thousand of these slogan cards and have placed numbers of them in the hands of our salesmen, instructing them to see that every customer who had any semblance of a shop would give them a conspicuous place in his windows. We have also placed these in prominent windows throughout our building, which occupies four streets."

Richmond Radiator Company, Inc., of New York, N. Y., gave over its February 5th sales bulletin to the campaign idea, quoting the letter in which the movement was called to the company's attention, and instructing salesmen to show this bulletin to "each and every one of your customers."

We have, also, a ticket issued by the Arling County Master Plumbers' Association, Inc., for a smoker held in Clarendon, Va., on February 24. As this is written, no report is available on the meeting, but an attendance of about two hundred men, all affililated with the building industry, was expected, and the "Spend for the Home in 1932" movement was to be the keynote of the meeting.

Here is what an advertising agency has to say about the movement: "Your movement should be the means of securing much additional business for concerns engaged in plumbing and heating contracting. As a result of today's business conditions, people have been remaining home more than in the years past. As a consequence, they are taking more interest in their homes and are more willing to spend money for modern heating equipment, another bathroom, install shower baths, and undertake similar work. Readers who tie-up with this campaign should not find it difficult to turn these opportunities into actual sales."

Just how well this campaign has taken hold in our own industry is indicated when it is learned that we have printed a total of 300,000 of the stickers and at the present rate of demand it will not be long before it will be necessary for us to put another run of them on the presses. Something near 6,000 of the window posters are being displayed in plumbing and heating retail and wholesale places of business all over the country.

Check up the list of newspapers in our March 5 issue and see if your local paper is there. If not write us and we will put its name on the list. Details concerning the material for the campaign will be found on another page in this issue.

RETAIL ADVERTISING

What a Few Dollars Bring

At the time when home means so much more to all of us, you have the opportunity you want to make that home a real center of comfort, of convenience and of pride. Better plumbing is at your service at less cost. Good workmanship is guaranteed to you and at less cost. Our long experience puts us in position to tell you that prices, design and service have never been more in favor of the home owner than today. We'll be glad to tell you what you want to know about the cost—all without charge to you. Phone us now, you take no obligation.

(In this space Your Name, Etc.)

A two-column newspaper ad

Now Is Your Time to Buy—

HAVE you wanted to take advantage of the new and attractive items which are now offered for your comfort and convenience by trustworthy plumbing dealers? We believe you have wanted these attractive new products—so many others have. Now's the time when you can have them because prices have been cut down to a record low level. With no obligation to you, just let us show you what you can get.
A phone call will bring a competent man.
(In this space Your Name, Etc.)

A single column ad

Dear Madam:

Have you been waiting for some opportunity to come which would help you at little expense to make your home more attractive?

That opportunity is here in the shape of prices for plumbing goods which are at almost a record, low level. And included in the items which you can now get at such bargain counter figures are the very things which will make your bathroom, your kitchen or your basement, an even greater source of comfort and convenience.

Our years of experience in giving real customer satisfaction is at your disposal--and the prices at which we can still guarantee our materials and our workmanship will surprise you.

Price is not the only thing in your favor. There is a wealth of new designs to choose from, the results of months of study by designers and engineers in working to put greater convenience at your disposal with less cost.

A telephone call will bring you a competent man to show you what can be done at such low cost to fit your home in the way you like. The call means no obligation--just a chance to talk things over. Our phone number is ------ .

Very truly yours,
HARRY BROWN

A plumbing sales letter

The copy on these two pages is for the use of readers of DOMESTIC ENGINEERING —without charge. If you wish to use the illustrations, they are sold at $4.20 for twelve —three months' service.

If you are using any of this copy, send us samples. We like to keep in touch with what our readers are doing.

SERVICE

Save On Your Fuel Bill

YOU want to save money and your heating plant is a good place to start. Modern designs in heating equipment offer so much more than older plants. You will be surprised to find the change in your basement which comes from letting us install one of these compact and efficient plants. You are sure of greater convenience and less work. And efficiency means economy. We can serve you best by first learning what you want, so just phone us today. A qualified heating engineer will call—without obligation.

(In this space Your Name, Etc.)

For one-column space

←Your Money Goes Farther—

You want to spend your money today in the way that will get you the most for it. And prices for heating equipment are at a level where you actually save money by spending now.

You can enjoy all those splendid comforts of modern heat, of freedom from dirt or drudgery which make the home a source of convenience to you and of pride to your family. With the heating season drawing to a close, you can still enjoy those comforts in the raw spring days and by phoning us now you are sure of a low cost. Phone us for details.

(In this space, Your Name, Etc.)

A two-column newspaper ad

ON THE BARGAIN COUNTER TODAY

"You can not always save money by spending it," says Harry Brown, local plumbing and heating contractor, "but today's market has made that possible.

"Every one of us has learned that wise expenditures and sound investment when things are cheap has been the foundation of most of our country's largest fortunes. Today we have this condition in the plumbing and heating market. Prices have dropped to a level unknown to many of the men now in the business. Manufacturers have taken advantage of conditions to redesign most of their products and to lower costs. The result is that the home owner today can buy better plumbing and heating products, he pays less for them than ever before, and they give him better results. When you buy these goods today, you are picking them off the bargain counter and that is why you have a chance to save by spending now."

Hand this publicity item to your newspaper

Dear Madam:

You remember, as all of us do, the days when keeping the home properly heated, was a man's job. The work was hard, the dirt was there, sometimes the fire went out at the wrong time and you found yourself splitting wood when you would rather have been at work upstairs or with your children or friends.

Modern heating removes all that drudgery and today you can get all its conveniences for less cost than ever before.

Prices are in your favor, they have dropped to a low, record level. Workmanship is just as efficient as ever and its cost is less.

And design of heating plants for your greater enjoyment has brought them to a new, high point of attractiveness and results. For months, manufacturers have been working to put their products in tune with today's demands for lower cost and greater results.

Our many years' experience is at your disposal. The guarantee we give is that which many of your neighbors have relied upon to their complete satisfaction. Phone us today and take advantage of a price condition which is all in your favor. Our phone number is ------ .

Very truly yours,
HARRY BROWN

A heating sales letter

OUR INDUSTRY

Quantity Production of Homes

LARGE scale operations are taking a more prominent place in the minds of many men in our industry. Many factors account for this crystallization of interest. Dwindling of prospective skyscraper work has turned the attention of contracting firms specializing in that field to the possibility of using their organizations and experience in quantity production of residences. A general conviction that building costs are too high has evolved this suggestion as a means of lowering costs, just as quantity producing methods have chopped costs in many other lines. Social workers, or at least some of them, feel that the single, detached home is passing out and that the low efficiency of the average home owner in household service such as firing a heating plant, can be met by central heating. And such group projects offer pleasing possibilities in affording recreation facilities, garden plots, sport grounds, etc., for their residents.

Two Methods of Selling

A FEW nights ago, a group of plumbing and heating contractors were discussing the question of low priced merchandise. The exact question which aroused the discussion was whether the plumbing and heating dealer should display a low priced article on his show room floor, low price in this case meaning not only cheapness but poor quality.

Both sides of the discussion had their advocates. Some dealers felt that no concession should be made to cheapness and lack of quality. The contractor whose principal source of business stability is his expert knowledge in the installation of mechanical equipment can get further by continuing to serve customers with materials and workmanship which bring long time satisfaction to the purchaser. In competition with firms who specialize on price selling, without much if any attention to what happens after the goods leave their stores, such a contractor is certain to lose.

Against this viewpoint, were the remarks of those who felt that the above arguments about reliability and reputation were sound but that the opportunity to bring them into play depended upon getting the prospective customer into the show room. And the magnet which would draw buyers through the front door was a price tag, preferably a low one. These men found that in the majority of cases, they could sell the quality article when they had the chance to show the two products side by side. But if the customer saw only a higher priced item and later saw a similar looking item in another store, the opportunity for comparison was lost and the sale might easily be made on the merits of the salesman rather than of the product.

A number of comments could be added to this discussion, on both sides of the question. It no doubt comes back in the long run to the fact that each one has qualities which he should develop and employ rather than merely to try to imitate the other man. Both plans depend for their success upon the particular ability of the man who uses them.

Business Changes

INTEREST should now be centered on business changes rather than on business volume. Quite naturally, in view of the length of the depression through which we have been passing, the volume of operations in many lines will continue for some time to make a poor showing in comparison with any recent year.

Those who have not closely followed each individual industry have not been impressed by the 1931 factory production and sales of several basic products. Reports show gains in 1931 over the year 1930 in cotton, wool, silk and rayon yarns and fabrics and boots and shoes. As the consumption of raw materials and the production of this vast industrial group was greater last year than for the year 1930, marked gains during the present year may not reasonably be expected. However, each of these commodities has made a good record since the first of the year. In a recent month, steel ingot production increased 12 per cent. During a period of high business activity, a 12 per cent step-up in ingot output would be hailed as great news.

Concurrently with the wage reductions in the building trades, many of the more important building materials, which have been held at or near the peak prices, have been reduced to a proper relation to the prices of other building materials and to the general commodity price level. Recent large reductions in the price of common brick now make it possible for the home builder to build with brick with the usual differential between brick and frame construction. There is more than a promise that the erection of single family houses will shortly show material gains, as very few districts are really overbuilt in this class of dwellings.

Sanitary Engineers Favor Study of Cross Connections

By a STAFF CORRESPONDENT

THE conference on cross connections held at the United States Bureau of Standards in Washington, was under the direction of the American Society of Sanitary Engineering. It was the outcome of a vote passed at the 1931 annual meeting of that organization, held at Richmond, Va., in September. At this meeting of the A. S. S. E., the research committee of the organization submitted a very comprehensive report on the subject of cross connections.

The progress made at the Richmond conference was still further extended at the Washington conference, and these results after being further classified and arranged, will be passed on to the next annual meeting of the A. S. S. E.

The purpose, spirit and results reached in the two days of intensive study at Washington are well set forth in the final act of the conference, which was the adoption of the following resolutions:

"At a conference of manufacturing and other interests, on the subject of improvement in design of fixtures, fittings and appliances normally forming a part of or attached to plumbing systems, so as to prevent the phenomena variously termed cross-connection, back siphonage, gravity drainage, etc., tending to pollute or infect potable water supplies with waste or sewage, the conference being held at the Bureau of Standards in the city of Washington, on February 24-25, 1932, under the auspices of the American Society of Sanitary Engineering, it is

"RESOLVED, That it is the sense of those assembled, that any action taken is not to be construed as an attempt to unduly disturb conditions in the industry, but rather to evolve reasonable regulation and adherence thereto over a suitable period of time, permitting any necessary changes in patterns, designs, methods, etc., to be accomplished in orderly sequence; and

"That the reports submitted and the recommendations made are to be submitted to the membership of the American Society of Sanitary Engineering at their 1932 annual meeting in Rochester, New York, on —— next, and for interim study by those interested, and are distinctly understood to be subject to changes or amendments as the wisdom thereof may be apparent."

The opening session was called to order by A. R. McGonegal, past president of the organization and chairman of the local committee of arrangements.

The temporary chairman then presented Dr. L. J. Briggs, acting director of the Bureau of Standards, who welcomed the conference on behalf of the bureau. He alluded to the plumbing system as properly to be looked upon, from the modern viewpoint, as an hydraulic system.

Of particular interest was his mention of the fact that for the purpose of studying and experimenting with the general subject of plumbing, the bureau had erected a tower 100 ft. high, which was the equivalent in this work, of a ten-story building, and that provision had also been made for long, horizontal runs, such as would be encountered in actual practice.

Dr. R. B. Hunter of the Bureau of Standards also spoke at this session. Probably to Dr. Hunter more than to any other individual are we indebted for the basic information on plumbing to be found in the so-called Hoover report on "Recommended Requirements in Plumbing." He went still further into the subject of the carrying out of experiments in plumbing.

Thomas M. Dugan, president of the A. S. S. E., was then introduced as the permanent chairman of the conference and he in turn presented William C. Groeniger, chairman of the research committee, who took charge of the definite work for which the conference had been called, the study of the subject of cross connections.

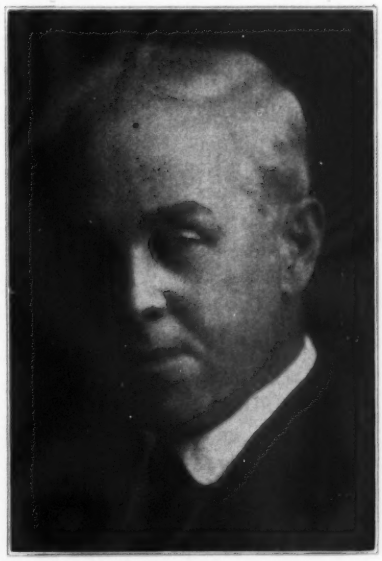
The first action was the appointment of a committee to report back a fundamental principle on which the work of the conference could be based. This statement is the following:

"Cross connections in plumbing are any construction or system whereby it is possible and/or probable, that a potable water supply may be contaminated.

"It is essential to consider therefore, not only the proper construction of the individual fixtures or appliances, but also their usage in connection with each other, and their manner of installation.

"The paramount principle involved in the elimination of cross connections is the preservation of the purity of the water supply and the conservation of public health."

The conference was then divided into seven separate groups or committees, each having its own chairman, and into the hands



Thomas M. Dugan

of each group was given the consideration of a problem or series of problems, relating to the general subject of cross connections.

A synopsis of several of the reports, covering the entire work of the conference, follows.

PLUMBING FIXTURES WITH UNDER-RIM SUPPLIES

Fixtures considered: Water closet bowls, urinals, slop sinks with integral flushing rims and bidets. Modifications for special purposes, such as hospital use, not considered.

It was the consensus of this committee that:

"*At the present state of the art of manufacturing fixtures of this type, it is impractical entirely to prevent siphonage in the fixture itself.*

"The committee realizes that the details of design of fixtures of this type will have some bearing on the amount of vacuum required, but inasmuch as siphonage can come about with most fixtures when subject to high vacuum even without the coincidence of waste stoppage, it was felt that the above statement could not be more specific.

"Inasmuch as the possibility of siphonage is multiplied by the number of connections to the water supply, the committee further recommends that:

"*There be no direct connection between the water supply and any part of a fixture of this type other than the connection necessary for flushing the said fixture.*

"As a corollary to this recommendation the committee further recommends that:

"*Supply pipes for frost-proof closets shall not drain into sewer.*"

FLUSHING DEVICES FOR WATER CLOSETS, URINALS, ETC.

The subject was divided under two heads:

(a) High and low tanks

(b) Direct flushing valves

The committee unanimously adopted the following recommendations pertaining thereto:

"(1) That the seat of the float valve should be elevated above the water line of the tank, so that the tank water can not return to the water supply by gravity.

"(2) That all float valves be provided with an afterfill, the terminal of which must not project below the water line in the overflow tube, or other air-break device, thereby providing an air vent to prevent siphonage to a certain degree."

Discussion of direct flush valves and attending safety devices developed nothing of particular value as to new suggestions. It was pointed out that present safety devices rely upon (1) air breaks, (2) ball checks in bypass to upper chamber, (3) check valves, (4) combination of two or more of the above, to give added safety factors. No agreement was reached as to the best methods to procure satisfactory efficient safeguards.

"We recommend that this problem be made a special study by the American Society of Sanitary Engineering, also that an effort be made to secure the co-operation of all makers of direct flush valves, to the end that they secure the services of the United States Bureau of Standards for definite tests and determinations.

"The committee further recommends that it is improper to impose full responsibility upon any single fixture, appliance, or equipment for protection against siphonage. It is further the opinion of the committee that a considerable responsibility rests upon the design and installation of the water supply distribution system and safety devices.

"It is recommended that flushing rim floor drains be flushed by an indirect water supply.

"It is recommended that any sewage ejector, sump or sewage pump, hydraulic elevator lift, side walk lift or curtain lift pump, which requires the use of water shall have an indirect supply."

The committee was unable to arrive at any conclusion relative to (1) water-cooled grease separators or traps and to (2) hydraulic sewage valves. It is recommended that these two subjects be referred to the research committee of the American Society of Sanitary Engineering.

HOSPITAL PLUMBING FIXTURES

"It is agreed that many types of hospital plumbing fixtures in use today are good examples of cross connections. In view of this it is suggested:

"'That manufacturers be requested to alter certain fixtures which come within the scope of the definition of cross connections, so as to prevent the possibility of water pollution wherever this alteration can be made without affecting the utility and purpose of the fixtures. On certain fixtures where this alteration can not be made, we recommend the adoption and use of air breakers to be installed on the supply lines at a minimum point of 6 inches above the highest possible point of liquid level.'"

LAVATORIES AND LAVATORY FITTINGS

"It is recommended that to insure against hazards of cross connections on lavatories, the outlet openings of single lavatory faucets, double lavatory faucets, and combination fittings, be not less than one-quarter inch above the rim (or bead) or the highest overflow point of the lavatory.

"It is further recommended that manufacturers of lavatories (enameled iron, vitreous china or porcelain) when making new molds or patterns, or when making repairs to present equipment, should work to a standard height of rim (or bead) which will not exceed one-half inch.'

"Regarding under-rim supply lavatories, sinks and similar fixtures, it is recommended that where it is not possible to bring the supply inlet above the overflow line of fixture, some means should be provided (air-break or otherwise) which will eliminate the possibility of a cross connection."

AIR CONDITIONING APPARATUS

"Potable water shall not be used in air-conditioning apparatus, unless the water supply thereto shall be located and provided with a suitable vacuum-breaking or air-relief device at least six inches above the top of any chamber or part in which water may be contained, sprayed or circulated; and also that there shall be no direct connection to any waste, soil or sewer of a plumbing system, but waste shall discharge over and an appreciable distance above a suitable receptacle."

"The water supply for bird fountains and baptistries shall terminate at a sufficient height above the rim or edge, to prevent siphonic action."

Design Bathrooms in Studio

AN ENTIRELY new departure in the development of bathroom fixtures, accessories, design and layout has been initiated by the Standard Sanitary Mfg. Company in New York City.

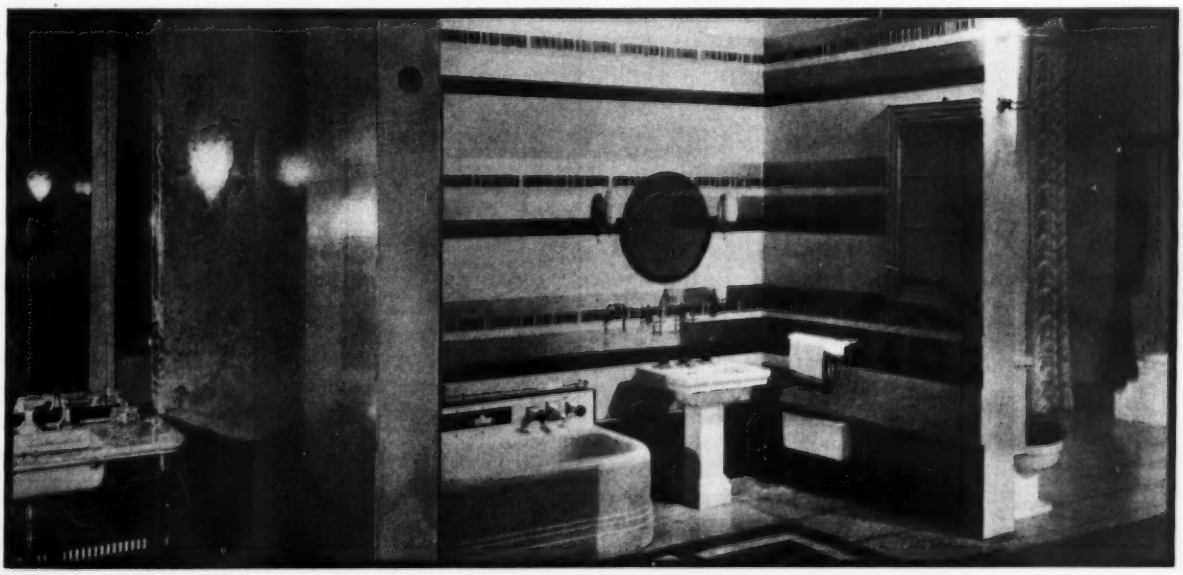
Under the personal guidance of George Sakier, internationally known artist, for the first time, architects, decorators and discriminating plumbing contractors will be assisted in preparing for the owner bathrooms complete not only in fixtures, but also in design, period and practicability. Mr. Sakier has spent some months in experimenting and at the present time has five model rooms completed whose scope is so wide that the needs of buildings, from the most modest in appearance to the most lavish, modern or period design, can be met.

The studio laboratory does not operate as a showroom. It serves rather as a place of experimentation for the development of designs, fixtures, accessories and methods of selling and installation, where interested people may come for the solution of their problems.

While the Standard Sanitary Mfg. Company will continue to produce only its regular line, such specialties as concealed brush holders, gunmetal mirrors, novel shaving mirrors, concealed chests and recommendations for decoration, lighting and installation will be given the greatest care and attention.

One of the units developed consists of flesh colored fixtures set in a room completely encased in gunmetal mirror. Still another is of modernistic design, priced for the average apartment building installation.

New designs for faucets, lavatories and tubs have been created—not so much with the purpose of making a new product but to have one that will fit the decorative atmosphere of the bathroom as it is decided upon by the person responsible for it.



What Is a By-Pass? . . . . By HARRY DAVIDSON

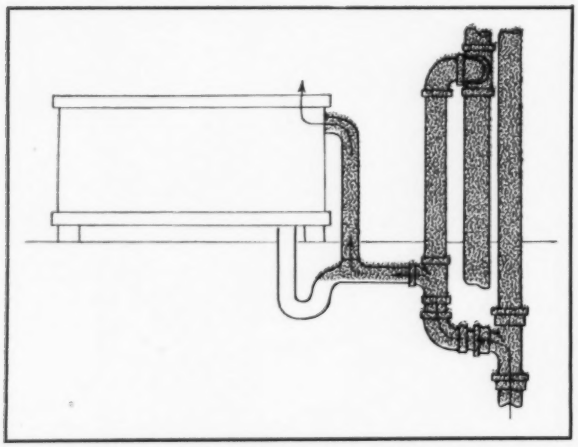


Fig. 1—The blue color in this illustration shows how a by-pass may be formed. Notice that the trap blocks the sewer air but the overflow connection is wrong and permits it to escape into the room

BY-PASSING in plumbing is about the same thing as short-circuiting in electrical work. Both produce bad results.

Recently a plumbing instructor asked us to define the word "by-pass" as applied to plumbing. Our reply was as follows: "A by-pass as related to the plumbing system, is any connection which will permit air from the drainage system, sewer, cesspool or septic tank, to evade or pass around the seal of a trap and escape into the interior of the house." This result can be brought about by a number of different kinds of by-passes. We will describe some of them, and no doubt our readers will think of others.

A by-pass in the drainage system is always produced by a mistake, by installing work in a wrong way.

One of the things a plumbing test would be certain to bring to light is the existence of a by-pass. As many of them would not be created until the finishing is installed, it is the final test rather than the water test that would generally tell the story.

Perhaps the simplest kind of by-pass is the one that is formed by a wrong overflow connection, by connecting the overflow to the outlet of the trap instead of the inlet. This is shown in Fig. 1. If a bathtub overflow were to be so connected, or the overflow of any other fixture, a by-pass would result. The by-passing of the trap seal is shown by the arrows.

No doubt the most prolific source of by-passes is to be found in indirect waste connections.

It may be set down as an invariable rule that whenever the trap of an indirectly connected plumbing fixture is vented, a by-pass is created. Venting is used only for the protection of traps against back pressures and siphonage. Neither of these forces is present in the case of an indirectly connected fixture, and therefore there is no need whatsoever of venting such a fixture. And yet it is done. It is done through ignorance and for no other reason. We know that this thing happens, for we have seen the evidence ourselves many times.

Refrigerators, drinking fountains, soda fountains, and other fixtures may have indirect waste connections, and by venting the trap of any fixture so connected, a by-pass certainly will be made.

Fig. 2 shows this thing in connection with a refrigerator, and Fig. 3 in connection with a soda fountain sink.

Someone will say, "No one will ever vent a trap that is on an indirect waste connection," but they do. Anything can happen in plumbing, and this error in venting certainly does happen.

Probably a more commonly committed error than the venting of a refrigerator trap, is the connecting of the refrigerator line serving refrigerators on several floors, into a soil or waste vent, as in Fig. 4. A by-pass is set up as shown by the arrows. The refrigerator stack should always pass separately through the roof, never connecting either at top or bottom with any part of the drainage or vent system.

The principal reason for prohibiting such practice is that it is an insanitary practice to connect refrigerator wastes or vents in any way that may by the remotest

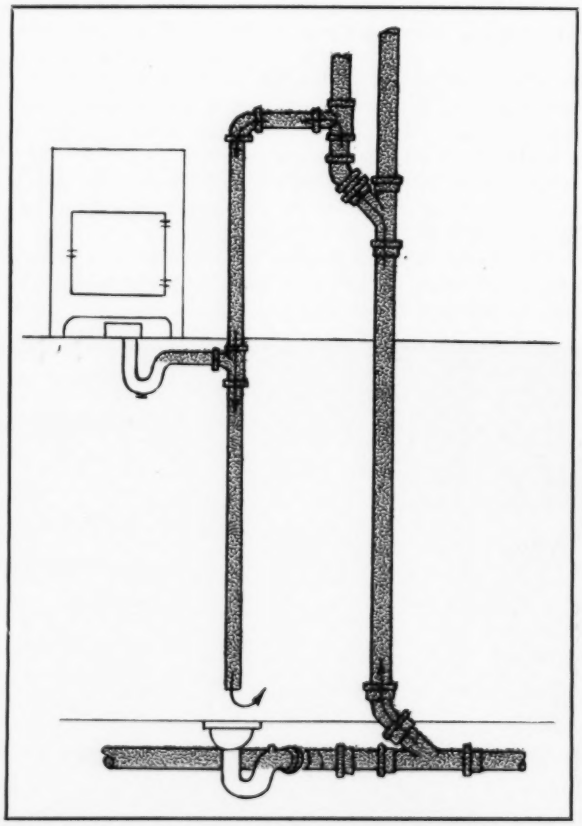


Fig. 2—In the case of this refrigerator drain, the connection to the vent permits the sewer gas and foul odors to enter the building

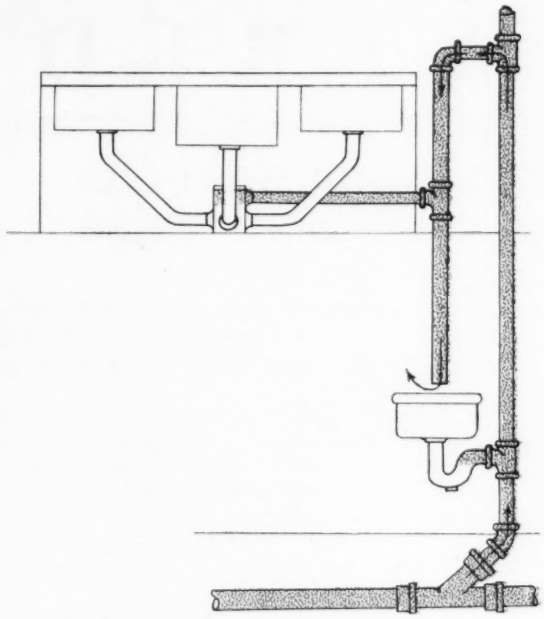


Fig. 3 — Whenever the trap of an indirectly connected plumbing fixture is vented, a by-pass is formed

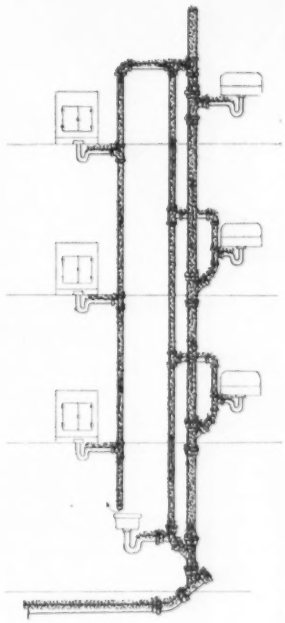


Fig. 4—In this instance, the refrigerator stack should be carried separately through the roof. It never should be connected at either the top or bottom with any part of the drainage or vent system

possibility lead to contamination of food and drink. From the foregoing we see that this wrong connection is not only insanitary from the standpoint just described, but also because of the forming of a by-pass.

In Fig. 5 another type of by-pass that can easily be created in connecting a garage catch basin is shown.

Every such catch basin should have a pipe connecting from a point above the water line to the outside atmosphere. Such a pipe is not a vent pipe in the true sense of the word, but a ventilation pipe. Its office is not to protect against siphonage, but to carry off gasoline fumes to the outside atmosphere. Such a pipe generally should be carried through the roof, and should never connect into any other line of pipe. When it does so connect, however, a by-pass is the certain result. We might say that the pilot drawing for one of our largest cities contains exactly the same connection as shown in our illustration.

Another type of by-pass is the one shown in Fig. 6. Such a by-pass might result in two different ways. In the first place, it might happen because of ignorance on the part of the workman, of the fact that a fresh-air inlet must be installed on the house side of the main trap. It might also happen in the following manner: In a few cities not only is a fresh air inlet installed with each house trap, but on the sewer side of the trap, what is known as a sewer vent is also installed. This vent is generally carried through the roof, as when the main trap is not used. If, however, such a sewer vent is connected as in Fig. 6, or carried into the front lawn, then it delivers sewer air at a point where it might have bad results.

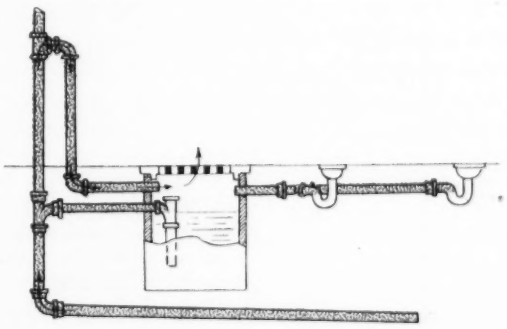


Fig. 5—Here is another type of by-pass that can be formed easily in connecting a garage catch basin

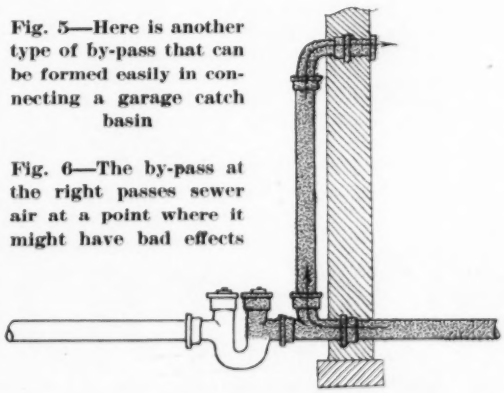
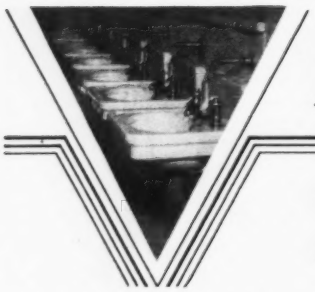


Fig. 6—The by-pass at the right passes sewer air at a point where it might have bad effects



ANSWERED

QUESTIONS FROM OUR READERS AND ANSWERS BY OUR ENGINEERS

HOW TO CONNECT REFRIGERATORS TO PLUMBING SYSTEMS

To the Editor:

In doing work in a hotel building, I have just seen a refrigerator line that has been installed as you see it in my drawing, Fig. 1.

This work was not put in when the building was originally erected, but only a short time ago.

According to modern ideas for connecting refrigerators to the plumbing system, the job seems to be very poor, as I look at it.

I wish you would give your opinion and discuss the job.

Pennsylvania. J. A. B.

It appears to us that if the refrigerators had been connected with the plumbing system when the building was originally built, provided the building is not an ancient one, they would not have been connected as shown in J. A. B.'s sketch, Fig. 1. Our reason for this opinion is that we do not think the plumbing inspector would ever have allowed such work. Also, that official may never have seen the work that has more recently been installed. A possibility is that there is no inspection in this town.

Fig. 2 shows more nearly how the work ought to be done.

There are several things wrong about Fig. 1. Each refrigerator should be trapped. Where there are refrigerators on two or more floors, the main line should pass through the roof. In our opinion there should never be a trap at the foot of the refrigerator stack. We do not see that it accomplishes any desired result, but acts as an obstruction which will fill up with slime and solids and finally stop completely.

A final objection is to discharging into a kitchen sink. We do not know that there is generally any law that would prevent doing this, but a desire for cleanliness about a sink where food is handled and dishes washed, would be sufficient reason for discarding any such practice.

Fig. 2 shows all these wrong conditions rectified, with the line discharging into a special drip sink or into a floor drain.

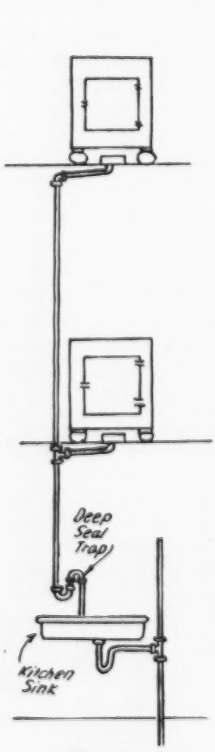


Fig. 1

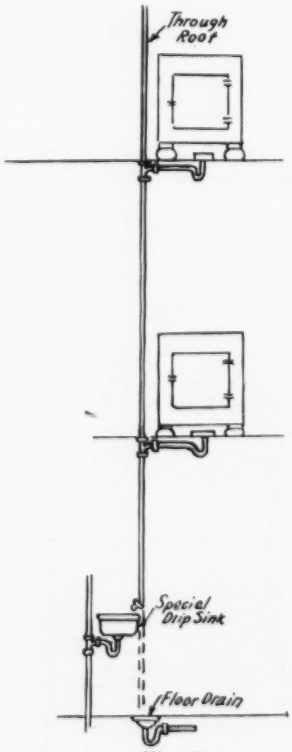


Fig. 2

SHOULD THIS BATHTUB BE VENTED?

To the Editor:

We are having a friendly argument here with a new plumber in town, about a job which he put in. I turned the work down, and same has been changed. However, the plumber contends that our ordinance does not prohibit the installation as he put it in. I have sketched his original installation, and am sending same to you with copy of our ordinance, and am asking you to give me your opinion as to whether our ordinance prohibits this installation or not.

The plumber who installed the work thinks we are

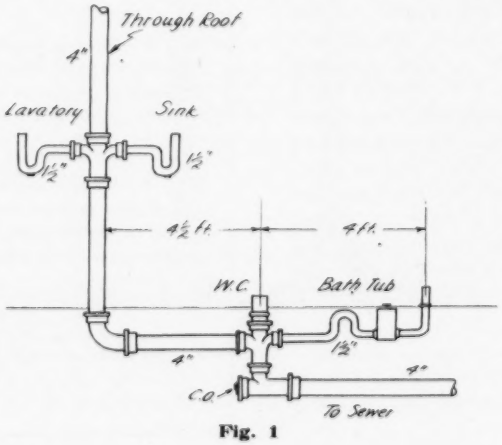
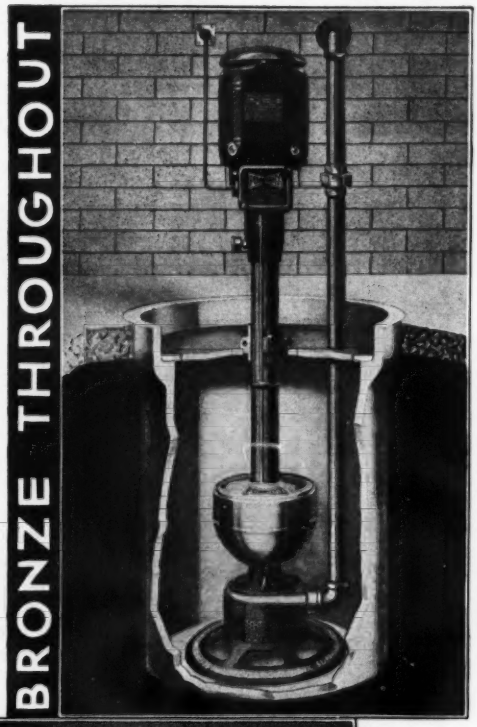
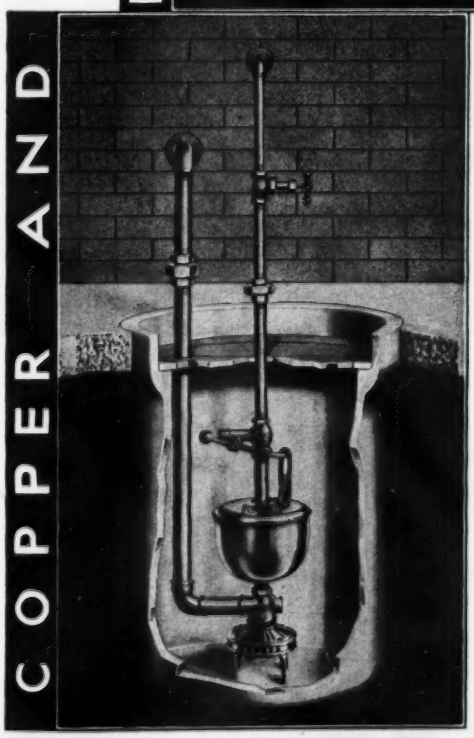


Fig. 1

A few reasons why— Plumbing Contractors install..





TRADE PENBERTHY PRODUCTS MARK

TO dispose of seepage below sewer level—or where sewerage facilities are not available—many plumbing contractors prefer one of the units illustrated here. Local conditions determine whether the electric or hydraulic unit will be most economical—but both pumps have many characteristics that appeal to the plumbing contractor.

Both the Penberthy Automatic Electric Sump Pump and the Penberthy Automatic Hydraulic Cellar Drainer are immune to corrosion—they are copper and bronze throughout. Both are thoroughly dependable under the most severe operating conditions, and are economical of electricity and water power. They are fool-proof, require no kid-glove handling, and are easy to install—when properly installed there is no servicing to consume time and reduce profits.

Manufacturing a complete line of both electric and hydraulic units in a full range of types and sizes, the Penberthy organization is especially well qualified to recommend the correct equipment for any specific case. Leading jobbers throughout the country stock both electric and hydraulic units.

PENBERTHY INJECTOR COMPANY
Established in 1886 DETROIT Canadian Plant Windsor, Ont.

PENBERTHY PUMPS REMOVE SEEPAGE WATER

STRICTLY *modern in design* SURPRISINGLY *low in price*

•

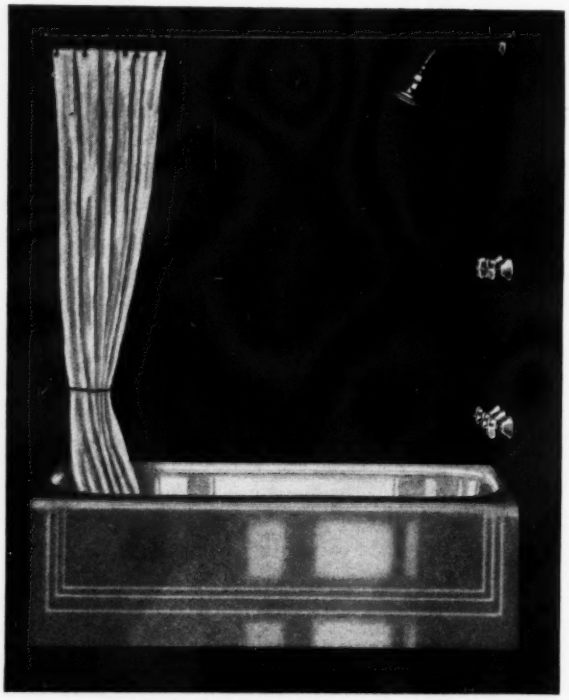
Popular priced bathrooms no longer mean the sacrifice of modern beauty when you can offer these "Standard" fixtures at such a low cost. The Pembroke *Neo-Classic* bath, Laton lavatory and Moderno closet are fixtures of unusual charm and within the moderate budget.

Your customers will quickly recognize the exceptional beauty in the classic lines of the Pembroke *Neo-Classic* bath, the graceful lines of the popular Laton lavatory, and the distinguished straight front of the Moderno closet. Show them these modern fixtures and they will be agreeably surprised at their low cost.

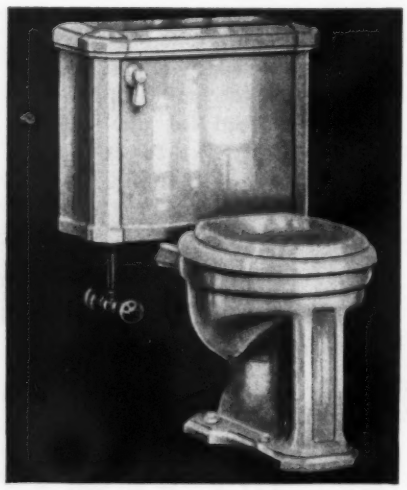
Why not display these fixtures which are within the reach of practically every home-owner. Other sets of "Standard" fixtures may be had at even lower prices.

Write today for the "Standard" plan of selling to old homes on convenient payments.

Standard Sanitary Mfg. Co.
PITTSBURGH, PA.
Division of
AMERICAN RADIATOR & STANDARD SANITARY CORPORATION



Standard
PLUMBING FIXTURES



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PEMBROKE
NEO-CLASSIC
BATH WITH SHOWER
P2315B

•

MODERNO CLOSET
F2197

•

LATON LAVATORY
F3117G

•

framed up against him, and wants some outside authority on plumbing. That is the reason why we come to you for your opinion.

Please define "sidecharge."

Texas. Plumbing Inspector.

Fig. 1 shows the original installation. Nothing in the correspondence shows in what way it is claimed that the ordinance is violated.

In section 11 of the plumbing code, under heading F, is the following, which we believe covers the criticism of the work:

"All bathtubs shall be trapped by a 4 x 10 in. lead drum trap where space permits, on a continuous waste and vent. When impossible to use continuous waste and vent, traps must be revented. . . . The outlet of the trap must be so arranged that the seal is protected when top of trap is open. Traps must not be more than two feet from waste outlet of fixture, and

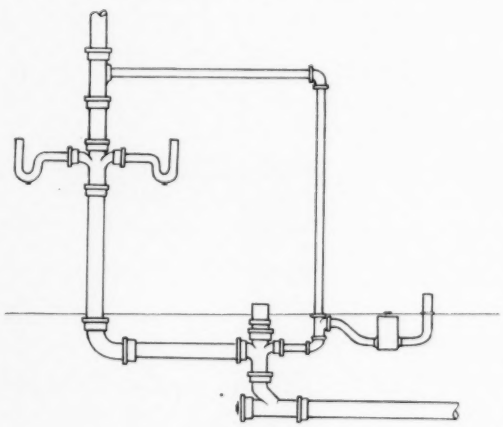


Fig. 2

when more than three feet from waste fittings must be revented."

According to the above requirements it seems to us that there can be no question that the bathtub should be vented, and that a continuous waste and vent connection should be used if that is possible. Therefore we are of the opinion that the work should be installed after the manner of Fig. 2.

Also in section 11, under heading A, there is this provision:

"Where the vents or revents are continuous, and traps are vented through the waste fitting, the center of the outlet of such fitting or lead branch shall not be set below the water seal of the trap."

The bath waste would be in violation of this requirement also, and the requirement is a just one, for any other course, such as used in Fig. 1, is against the principles which must be followed in the prevention of siphonic influence.

It is not the best practice to use a T-Y fitting as in Fig. 1. A sweep fitting or a Y and eighth bend would make a better job.

We have never before heard the term "sidecharge" and are unable to give a definition of it. We think it probably is a word having only a local application and meaning.

Questions Answered and Discussed by Readers

How the Question Was Answered

The following question was asked in the issue of March 5, and the accompanying answer is by a reader:

What size of water pipe would you use to supply 10 *water closets equipped with* 1¼*-in. flush valves if the normal water pressure in the line is* 40 *lb.?*

How Would You Answer This Question?

If a pneumatic water system tank had 50 *lb. gauge initial air pressure, what would be the gauge pressure when it had been pumped 2/3 full of water?*

Answers based upon your experience, and suitable, will be paid for and published in the April 30 issue.

—1—

THERE are three ways of sizing water pipe for fixture branches, one being by judgment and experience, one by the area, or factor, method and one being by pressure drop. In the first of these there is no rule to go by beyond that of ordinary practice and when so sized the piping would probably be made somewhat as shown in Fig. 1. However, this is more or less purely guesswork and much more consistent and dependable methods are possible. That employing the areas of pipe, or corresponding area factors, as well as that based on pressure drop must have the probable maximum number of fixtures and the maximum rate of flow assumed before the sizes can be determined.

With 10 water closets the probable number which will be flushed at one time must be assumed beginning at the end of the branch with the first closet and proceeding toward the 10th closet until all of the fixtures have been considered. This gives a schedule about as follows:

No. of Fixtures	No. Flushed Together	Percentage
1 Water Closet	1	100
2 Water Closets	2	100
3 Water Closets	2	66⅔
4 Water Closets	2	50
5 Water Closets	3	60
6 Water Closets	3	50
7 Water Closets	3	45
8 Water Closets	3	40
9 Water Closets	4	45
10 Water Closets	4	40

The foregoing schedule assumes that with two fixtures both might be flushed at the same time, but that with three or four fixtures only two would probably be flushed at the same instant; with five, six, seven or eight fixtures, there might be three flushed together and with nine or ten fixtures there might be four flushed at once. This gives a gradually descending percentage of use starting from 100 per cent and reducing down to 40 per cent when 10 fix-

tures are installed. The factors allowed for the different sizes of pipe are as follows:

Size of Pipe	Factor
1¼ in.	20
1½ in.	30
2 in.	60
2½ in.	110
3 in.	175

and this results in pipe sizes as follows:

1 Water Closet	1¼ in.
2 Water Closets	2 in.
3 Water Closets	2 in.
4 Water Closets	2½ in.

so that the sizing schedule would appear as indicated in Fig. 2.

With the pressure drop method the maximum gallons per minute flowing in each part of the system is computed and then the pipe is sized from the allowable pressure drop which the conditions permit. For example, the number of gallons used by a 1¼-in. flush valve may be taken as a maximum of 50, although some authorities quote 30 g.p.m., and, at 50 g.p.m., the quantity of water flowing with anywhere from one to four fixtures flushing at once would be

1 Water Closet	50 g.p.m.
2 Water Closets	100 g.p.m.
3 Water Closets	150 g.p.m.
4 Water Closets	200 g.p.m.

so, if an allowable pressure drop of 24.9 lb., per 100 ft., is assumed (which is the pressure drop obtained at 50 g.p.m. flowing in a 1¼ in. pipe), then the pipe sizes for one to four fixtures flushed at once would be:

1 Water Closet,	50 g.p.m.	24.09 lb.,	drop 1¼ in.
2 Water Closets,	100 g.p.m.	9.46 lb.,	drop 2 in.
3 Water Closets,	150 g.p.m.	7.00 lb.,	drop 2½ in.
4 Water Closets,	200 g.p.m.	12.47 lb.,	drop 3 in.

The pipe sizes would then be as indicated in Fig. 3.

A real area method consists of using the areas direct without considering the matter of factors and this is done in the following manner: The area of a 1¼-in. pipe is 1.5 sq. in., the area of two 1¼-in. pipes then will be 3.0 sq. in., the area of three 1¼-in. pipes will be 4.5 sq. in., and the area of four 1¼-in. pipe will be 6.0 sq. in. The pipes corresponding to these areas are then selected as being the proper size to use for the line where the number of fixtures flushing simultaneously corresponds. This gives

Fixtures	Combined Pipe Areas	Size of Pipe
1 Water Closet	1.5 sq. in.	1¼ in.
2 Water Closets	3.0 sq. in.	2 in.
3 Water Closets	4.5 sq. in.	2½ in.
4 Water Closets	6.0 sq. in.	3 in.

and these sizes are used in Fig. 4. It will be noted, however, that this last method does not consider the reduction in friction which will occur in the larger sizes of pipe and therefore will give slightly larger pipe sizes in big installations than where the friction drop method or factor method is used.

Fig. 1

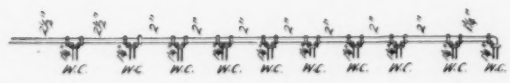


Fig. 2

Fig. 3

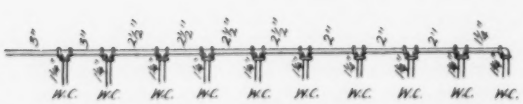


Fig. 4

NINTH ANNUAL OIL BURNER SHOW WILL BE LARGEST IN HISTORY

PLANS for the largest show in the history of the oil burner industry are revealed in an announcement of the program for the ninth annual convention and show of the American Oil Burner Association which is to be held in Boston, April 11 to April 16. A full week's activity includes two merchandising and one engineering session in addition to regularly scheduled meetings for manufacturer members and members of the Dealer Division.

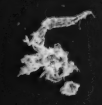
Walter F. Tant

Two factors in addition to the growing prominence of the annual oil burner show are felt to be responsible for the unusually large number of exhibitors. These are the provision for "live" or operating exhibits and the waiving of requirements for membership on the part of accessory equipment manufacturers. This latter provision has brought many new companies, non-members of the oil burner association, into the show for the first time.

The show formally opens at 7:30 p.m., Monday, April 11, and is open daily thereafter from 1:30 to 10 p.m. The annual meeting for members at which the new directors are elected will be held on Tuesday morning and the officers will be elected at the meeting of the new board of directors on Thursday morning. Walter F. Tant is president. A special open meeting for dealers is scheduled for Tuesday afternoon.

DOMESTIC ENGINEERING

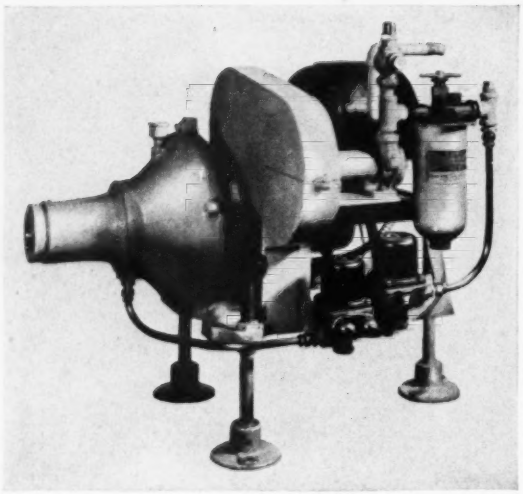
AN EDITORIAL SECTION



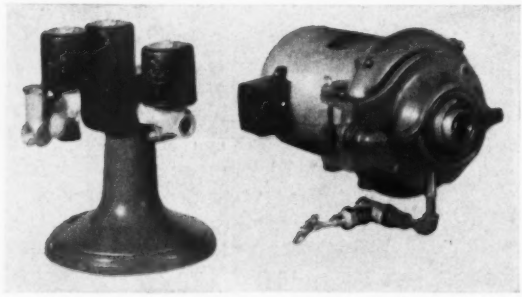
AUTOMATIC HEAT

AUTOMATIC HEAT SECTION

SILENT GLOW MID-WEST



MODELS 108-208



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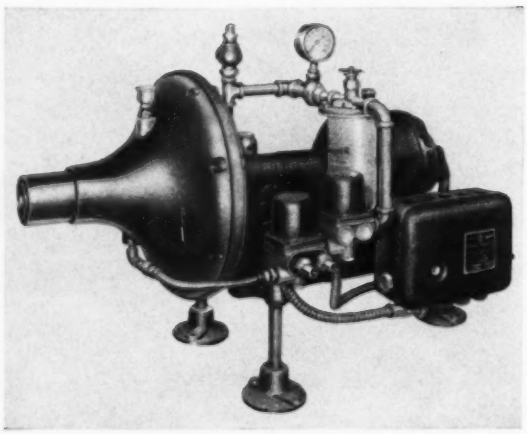

MODELS 211-311-114

In the Silent Glow Mid-West line dealers have a horizontal rotary cup type burner for all industrial and commercial requirements with a capacity up to 20,000 square feet of steam. This line is designed to burn automatically fuel oil as low as No. 5.

While the Mid-West line is new to Silent Glow, it has been on the market for seven years and enjoys an enviable record for successful performance.

Now the Silent Glow dealer can look to every chimney in his territory as a prospect for at least one Silent Glow Oil Burner—whether it is a shanty or a skyscraper. He can now offer the most complete, the greatest line of oil burners ever assembled under the name of a single company. He can proudly represent a line of oil burners backed by one of the oldest and strongest companies in the industry—a company that produced more oil burning units in 1931 than any other manufacturer. Is it any wonder that Silent Glow dealers are prosperous—is it any wonder that 99 out of every 100 dealers who have ever been with Silent Glow are still sticking?

The Silent Glow Mid-West line embodies features of construction and design present in no other burners.

Visit our exhibit at the Boston Show, Booths 89, 90 and 91—Mechanics Hall—and have our engineers explain them to you.

The Silent Glow Mid-West line is listed as standard by the laboratories of the National Board of Fire Underwriters

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Member Oil Heating Institute · Member Distillate Burner Manufacturer Association

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SILENT GLOW OIL BURNER CORP., LTD.
6320 St. Hubert St., Montreal, P. Q.

This attractive display window is one reason why Horace Beaumont, plumbing and heating contractor of Paterson, N. J., has been able to increase his business volume so far this year in comparison with the same period of last year

Uses Today's Conditions to Boost Sales

By FRANK J. GRAVES

"THE depression has helped our oil burner business. We are now making sales to people and interesting prospects who would not listen to us in 1928 and 1929. The first few months of 1932 show up better in sales and live prospects than the same period in 1931 and I expect this year to show substantial oil burner profits." So spoke Horace Beaumont, plumbing and heating contractor, Paterson, N. J., who has been successfully selling oil burners for seven years. He conducts his oil burner business under the trade name of the Paterson Oil Burning Equipment Co.

Mr. Beaumont claims that the economy of oil burner operation has a stronger appeal today than it ever did because everyone has been trying to economize, not only householders, but industrial and commercial men. He goes after the commercial end of the business energetically and he says that laundryowners, bakers, garage proprietors, department stores, operators of dry cleaning plants and other business men are buying oil burners with less sales resistance today than they did before the stock market crash when money was more plentiful.

SALES RESISTANCE IS DIMINISHED

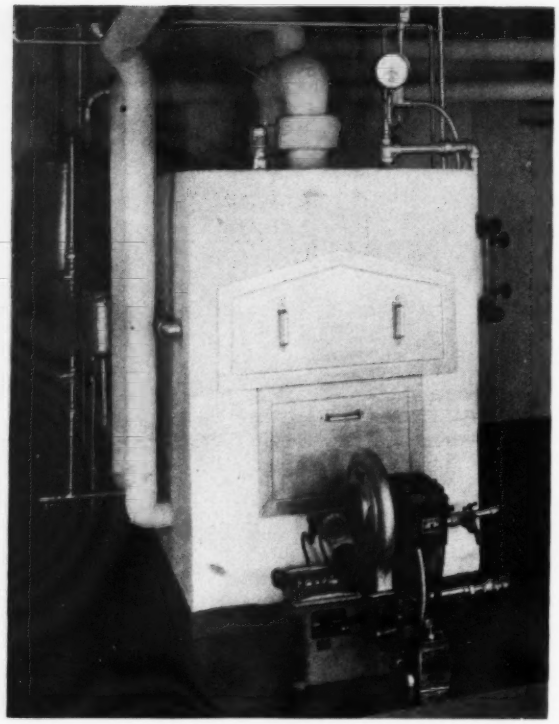
When a salesman talked economy to the owner of hand-fired equipment in those days, it was of secondary importance to convenience and comfort, but nowadays this contractor finds that economy comes first although the other appeals are still powerful. Mr. Beaumont says that all types of oil burner prospects are now eager to find ways and means to cut costs and it is not hard to show such prospects that they can save the cost of installation in a few years by changing from hand-fired equipment to automatic heat, after which time the saving is all "velvet."

SELLS TWO BURNERS TO ONE PURCHASER

This contractor always employs at least one man to contact the mills, factories, commercial establishments, fraternal organizations, religious edifices and country clubs in his territory. In the busy seasons, he utilizes the services of two or three outside men and these salesmen also contact householders. Frequently a Beaumont salesman will sell two oil burners to one purchaser. Not long ago, this contractor made such a dual installation in the local Jewish Temple, one burner for heating the radiation and the other for heating the water. Such installations sometimes run into thousands of dollars.

Horace Beaumont maintains profit-reducing prices even in these days. He often gets $800 and up for an

AUTOMATIC HEAT SECTION



This is an example of the type of residential oil burner installation that Mr. Beaumont makes. The boiler is enameled white. It is no wonder that his customers are satisfied and willing to pay a fair price for the work

oil burner installation in a small home, but as he puts it, "We sell satisfaction with every oil burner installation and that means maintaining a service department at considerable expense, consequently we are not foolish enough to overlook our overhead and net profit when we figure a job. Whether prices are low or high, the fundamentals of cost accounting are the same and profits in depression or prosperity can only accrue when a contractor sells merchandise at a price that covers his overhead and a reasonable net.

"We give a year's free service with every sale and our service men are instructed to drop in to inspect all our installed burners whenever they are in these neighborhoods. This complimentary service benefits us more than the users. It keeps service calls at a minimum because we usually catch defects before they become chronic. It builds customer good-will and enables us to sell additional merchandise. Frequently, an oil burner customer will buy a swing spout faucet or a remodeled bathroom as a result of an unannounced service call of this kind.

SERVICE MAN CAN HELP

"A tactful service man can bring in many user leads if he keeps his ears and eyes open when servicing oil burners. Of course, it is unwise for him to use sales pressure, nevertheless he should not forget that he is working for a dealer who is making it his main business to sell merchandise, not to repair it.

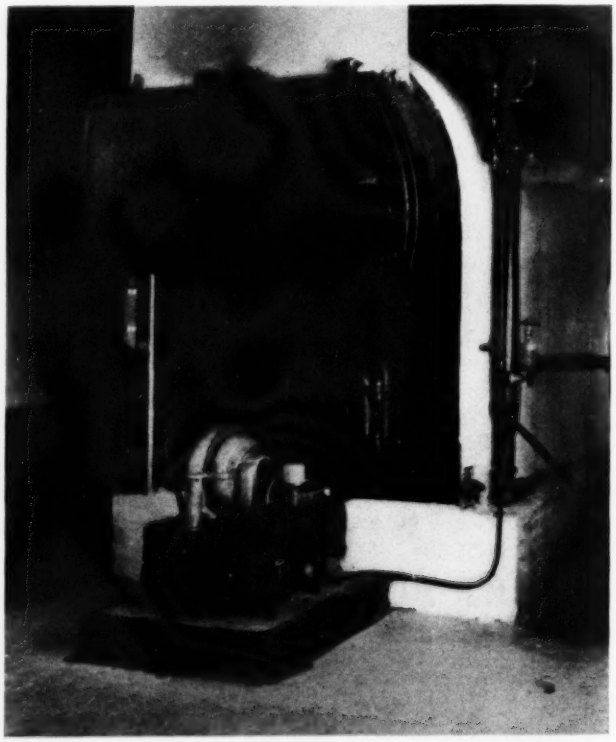
"However, two things are essential to proper co-operation from users in the procuring of live leads on oil burners. The contractor must sell a first-grade burner and make a first-class installation, otherwise the users will do more complaining than praising. We never cut prices on oil burners nor make sub-standard installations to take sales away from price-made competitors. We want no business at cut prices. We have received too many complaints against oil burners sold to meet price competition and we have found that in each case it is because a 'dud' burner was sold or a quality burner was so badly installed that it became a 'dud.'

"It stands to reason that the contractor who sells a burner at a bargain price must either cut on the burner or the installation. Only the other day, a householder called up complaining that her oil burner smoked so badly that her drapes and furniture were covered with soot. Would we send a service man? We found that this was a price-cutters' installation—a good burner improperly installed. The flue and boiler were full of scum and dirt, so was the exterior of the house next door. We reinstalled the burner and it now works like a charm, but the householder, considering our service charge, paid for a quality installation in the long run.

CONTACTS THE ARCHITECTS

"We have installed burners that have been functioning for three or four years and the insides of the boilers are as clean as the day we hooked them up. Much of the adverse criticism regarding oil burners that one hears in public has been due to low grade burners or poor installations and we do everything possible to make this clear to prospects."

Horace Beaumont not only sends out salesmen to sell oil burners, but he goes out himself, restricting his



These two photographs show the dual oil burner hook-up made His large-size installations are equa

activities to architects. He says, "The plumbing and heating contractor should contact the architects in his territory and he will find that in time they will provide a lucrative field for oil burner sales.

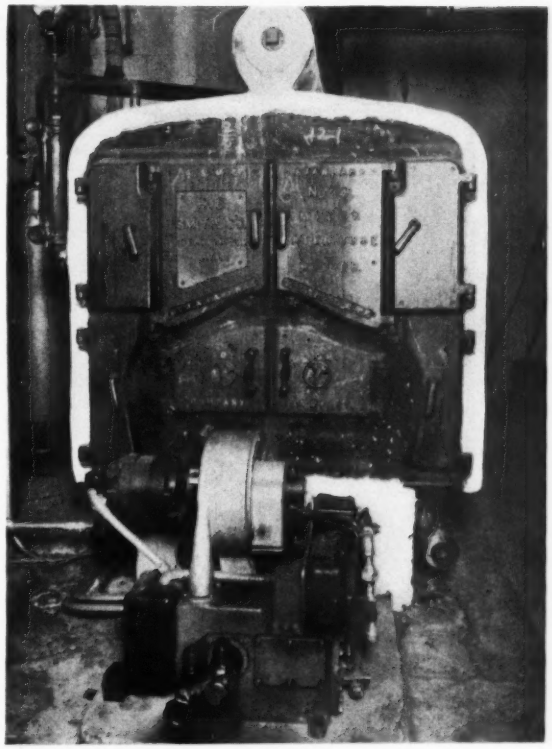
"Up to a few years ago, the average architect was afraid to specify an oil burner unless the owner demanded it. The plan-producer seemed to be afraid that the burner might explode, cause a fire or do some equally ridiculous thing. There are still too many architects in every territory who hesitate about specifying oil burners for these same reasons. The plumbing and heating contractor can do much to remedy this situation if he will personally call on the local blueprint artists. Writing letters and mailing literature is helpful but not enough. Personal contact is absolutely necessary to get results with architects.

"I go out regularly, leave literature in their offices and discuss all phases of automatic oil heat with these men. I place myself at their disposal in every legitimate way. The average architect can not be expected to know everything about everything that goes into a house or building because new products are coming out continually and if a plumbing and heating contractor offers his services in an unbiased advisory capacity, he will find it advantageous in the end.

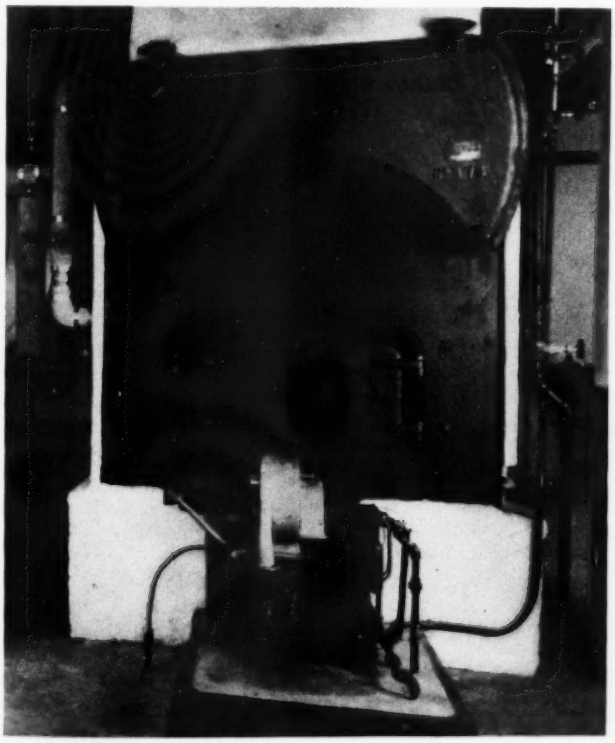
ECONOMY FACTOR WILL HELP OIL BURNER SALES

"When I first started visiting architects a few years ago, I met many rebuffs when I suggested that they specify oil burners on the constructions they planned, but I kept at it and today six or more local architects specify our oil burner whenever the opportunity affords. This is nice clean business. In most cases, the credit of the purchaser is ace-high. If not, we pass up the job.

"In conclusion, I can say that our experience indicates that from now on the market for oil burners will be better than before because everyone is trying to economize from householders to government officials. At first thought, the fact that economy rules may put a damper on a dealer's merchandising aspirations and this feeling may be justified today if the dealer is selling luxury goods, but it certainly does not hold with oil burners, which is a product that provides the economical feature that people are looking for now."



This is the oil burner installation in the Municipal Building at Ridgewood, N. J. It is another example of the Beaumont type of work

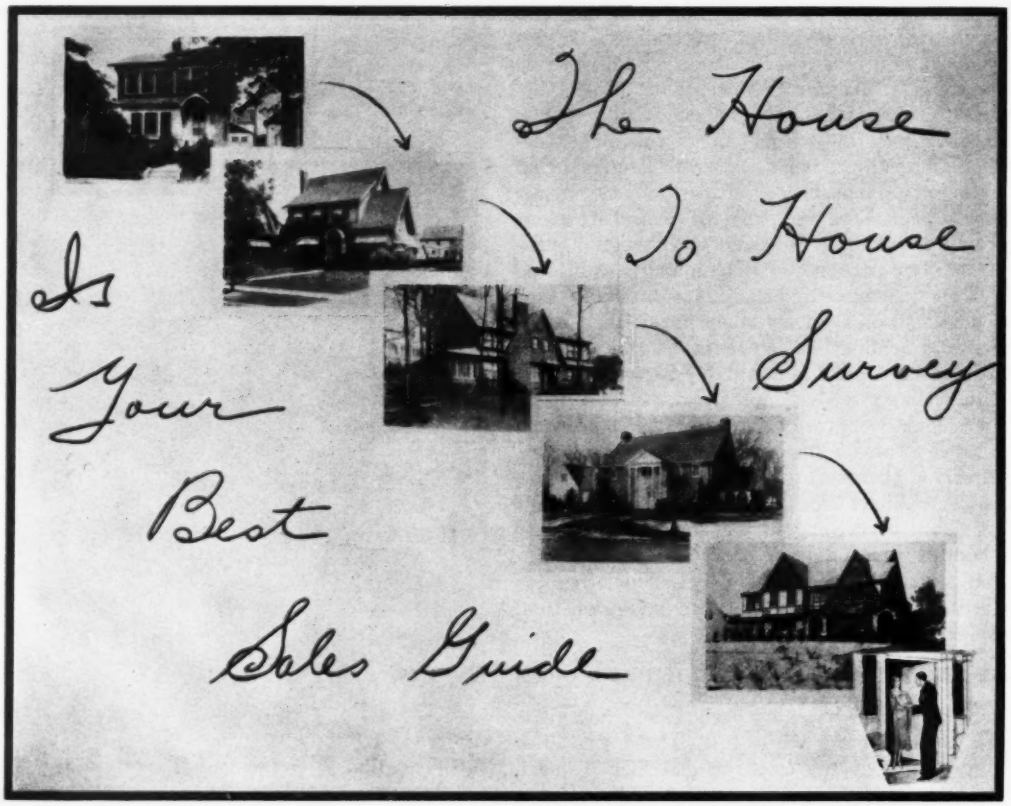


by Mr. Beaumont in the Temple Emanuel in Paterson, N. J. lly as neat as those done in residences

DESCRIBES PROBLEMS IN HEATING AND VENTILATING SCHOOL BUILDINGS

"Some Local and State Problems in Heating and Ventilating School Buildings" was the principal topic discussed at a recent meeting of the Pittsburgh Chapter of the American Society of Heating and Ventilating Engineers. The speaker was Dr. Hubert Eicher, director of the school building division of the Pennsylvania Department of Public Education.

Dr. Eicher said he considered misunderstanding to be chiefly responsible for the friction which often exists among engineers, architects, school officials and men in public office. He traced the history of Pennsylvania school building codes, showing how they are applied and how they have been changed. He explained that in 1911 a law placed all plans and specifications of school buildings within the jurisdiction of the State Board of Public Education, which served well until 1921, when the A. S. H. V. E. helped to revise it.



A composite photograph illustrating this dealer's method of getting leads

Success in Handling Stoker Salesmen

MORE than 2,000 automatic stoker installations in six years is the record set up by Emil J. Decker, heating engineer, Union City, N. J. He does business under the trade name of Automatic Coal Burner Corporation. On Sept. 21, 1931, he was awarded the first prize of $1,000 for selling the most stokers for the manufacturer whose product he features. This shows that Mr. Decker did not fall behind in sales during 1931.

The outside salesman is the ace in Mr. Decker's merchandising layout and he pays him 10 per cent commission until the canvasser proves himself consistently able to close sales, then the boss may offer a drawing account but he has no set policy on this. It all depends upon circumstances. Mr. Decker says that salesmen are as temperamental as opera singers and since he has had experience with hundreds of applicants and employed canvassers during the past six years, his opinions on the subject of outside selling and its personnel are worth reading. At the present writing, which is an in-between season period, he employs seven outside salesman. In seasons, he has ten or more working for him contacting prospects at the doorstep.

This heating engineer says, "The contractor who imagines that he need only insert an ad in the paper for a canvasser, interview the first man who comes along, hire him and sit back waiting for orders, is doomed to disappointment. Only one out of one hundred men employed in this haphazard fashion would be a satisfactory producer.

"Because of the fact that we are established, have a good selling product and employ salesmen regularly, we have a steady stream of applicants asking for canvassing jobs, but the majority of them are 'floaters' and it is this type that will more than likely overwhelm the contractor who is looking for outside salesmen. He must eliminate them from consideration by checking up the past record of each applicant. If he has jumped from job to job every few months or can not give clean-cut references, pass up the application even though he will work on commission.

"You know that the average 'floater' is not always a poor salesman. He is sometimes a capable closer but he is useless to the up-building of an outside sales force because he will not stick long enough. He is a sort of

canvassing hobo. He will offer to work on commission because he knows that almost every dealer advertising for outside salesmen has a prospect list which contains live leads. After being hired he asks for these leads immediately, then works them until he closes a few sales. He is sure to find a few easy ones in every prospect list.

"With these sales as a lever he button-holes the dealer for loans knowing that the average business man is inclined to grant such requests if he finds that the new man is able to close sales. Good canvassers are so scarce that employers go to great lengths to hold them. After the dealer starts advancing the 'floater' money, the canvasser always manages to keep ahead on the deal, in the meantime working only the live leads. If the dealer holds the keys to the prospect file, the canvasser keeps demanding live leads knowing that his boss will more than likely pass him the 'cream' of his list in order to get in enough sales to make good his loans. I know what I speak about. Canvassers touched me plenty until I turned thumbs down on all loans.

"The average 'floater' will not canvass for new leads. He works the live stuff handed to him at the start and when these leads are 'killed' or sold, he looks for another job. That is the reason a contractor can not afford to employ any Tom, Dick or Harry merely because he is willing to work on commission. He must make sure that his outside salesmen replenish his prospect list as fast or faster than they use up the old names.

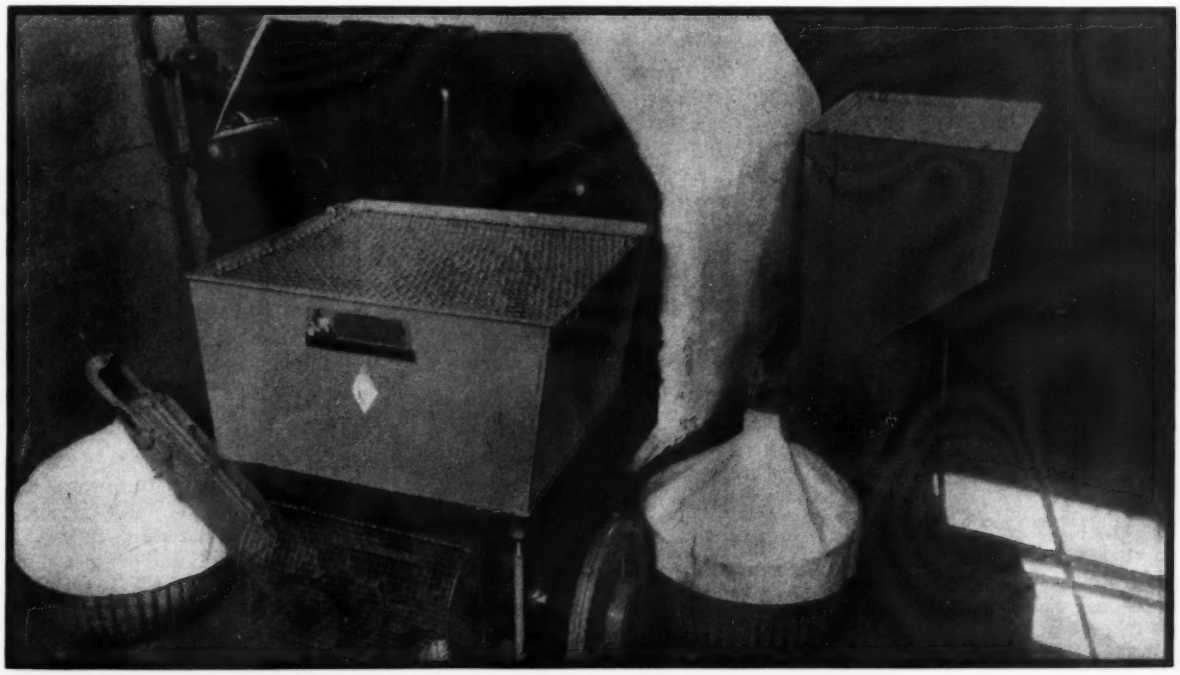
"Men as a rule do not like to pull doorbells, and this applies whether they are 'floaters' or 'stickers,' but they need not canvass 'cold turkey' to get live prospects if they will 'Use the user.' I tell all of our salesmen that if they will see three users, one architect and one real estate man daily, they will get more leads than they can handle and inasmuch as they will have the names of the people they are to interview, they need not pull doorbells 'cold turkey,' but may go right to the home and ask for the householder by name.

"There is no better booster than the satisfied user and the contractor or salesman who does not utilize him is overlooking a bet. Moreover, the percentage of satisfied users to sales in the automatic heating field is practically one hundred per cent. In other words, almost every user you interview is satisfied. The many advantages that automatic heat has over hand-firing assures satisfaction.

"Not long ago one of our men sold an unusual stoker installation of approximately $2,000 to an industrial man who was so pleased with the fuel saving that he assisted in the sale of three or four similar outfits. For a time all the men on our outside sales force were trying to make similar sales. Cases of this kind make the men enthusiastic and peppy, and if only for this reason, the contractor should, therefore, encourage them to 'Use the user.' A satisfied user can enthuse a canvasser more than anyone else.

"Salesmen as a class imagine that 'Distant fields are the greenest' and I find that they will wander all over the lot unless their work is laid out for them in territories. One neighborhood is about as good as another for automatic heat. Right across the street from this showroom, there are just as many prospects for our stoker as there are on a street ten miles from here but most salesmen fail to see it that way.

"That is one reason why a car is often more of a hindrance to a canvasser than a help. The salesman with an automobile is more likely to drive around in circles looking for business. He may drive down to Bayonne ten miles away, see one prospect, then look over his cards and speculate on another possibility in Englewood fifteen miles from where he is and so on, whereas if he has no car, he can not get away from a certain sec-



A two-stoker hook-up serving a Newark, N. J., building

AUTOMATIC HEAT SECTION

tion so readily and will be inclined to stick around the neighborhood and canvass."

Mr. Decker's men do not make reports on calls but he checks them up verbally every few days to find out what they have been doing. On procuring an interview, each man makes out a heating plant survey and these are checked over by Mr. Decker to determine if suggestions or corrections may be made. These surveys also give him an opportunity to ascertain how well the men are working and what their chances are to close sales. The form reads as follows:

HEATING PLANT SURVEY

Date.....

Name of prospect.....
Address .....
Residence phone.....Business phone.....
Building address .....
Source of lead .....
Type of building...Frame...Brick...Stone...Stucco...
No. of rooms.....No. of floors.....No. of families.....
..... Stores .....
.....2 Rooms.....
.....3 Rooms.....
.....4 Rooms.....
.....5 Rooms.....
.....6 Rooms.....
Kind of heating plant—Steam..Vapor..Hot Water..Air..
Type boiler—Round.....Square.....Sectional .....
Make boiler.....Number.....Rating.....
Draft — Good.....Fair.....Poor.....In.....
Smoke pipe size.....Reduced.....Bends.....
Electric current—Dc.....V. Ac.....ph....cy....v....
Fuel previously used—Tons.....Size.....Cost.....
Grate area.....Ash pit door.....Ash pan.....
Grate size—Diameter.....Length.....Width.....
Floor to shell.....Floor to grate.....
All rooms heated before.....Heating satisfactory.....
Front or side installation.....Pit.....Floor level.....
Remarks: .....
Salesman.....

During the busy season, it is not unusual for some of Mr. Decker's outside salesmen to touch $350 weekly on commissions, but he says that these big weeks sometimes spoil the men when the busy season has gone because they can not accustom themselves to the smaller commission checks passed out at that time. He would rather see a more even flow of business but of course, this can not be controlled.

He also warns that the "floater" will never stick during the slow season, which is just another reason why it does not pay to employ him. He prevents the organization of a stable sales force by pyramiding canvasser turnover. However, this heating engineer explained that canvasser turnover is something that no contractor can escape. Salesmen, even the best of them, will not stick forever. The contractor should aim to employ canvassers whom he believes will stick long enough to make their employment profitable. His men average two years service, then they quit or are fired for various reasons.

More than a year ago he employed a canvasser who drew a commission check of $300 the first week he was employed. After a year or so, this canvasser started drinking and had to be let out. Such things must be expected by the contractor contemplating an outside selling campaign. It's all in the game but after all temperamental salesmen are no more trouble than mail-order competition, poor mechanics and unfair utility competition.

Mr. Decker pays the commission the moment the sale is verified regardless of the down payment. He says that the contractor can not hold his men up on bona-fide sales until the down payment is sufficient to pay the commission.

He helps his salesmen get leads in many ways. During the past year, he employed twelve women to questionnaire the adjoining territories by telephone but he advocates men for this survey work even though they are merely utilized to question householders and not to make the actual sales. Mr. Decker says that when a woman canvasser calls up a home during the day she gets the woman of the house on the wire and then you have two women talking coal stokers—something neither one of them knows anything about. He is strong for the male in selling automatic heat.

On another occasion Mr. Decker employed ten male canvassers to comb the territory for live leads to be followed up by the regular salesmen. These pre-canvassers were given the name of the people in each section. The names were procured from a telephone directory. In Jersey, the telephone company issues a book with names listed according to streets and numbers. This makes a handy guide for outside sales work. Mr. Decker's merchandising surveyors, as they might be called, were given names taken from this list, one name and address placed on each card, then they approached these people for information regarding the heating systems used, how much coal was burned yearly, when the prospect could be interviewed most conveniently, etc. The questions were not printed on the cards, the canvassers merely writing down their findings after chatting with the prospects. The most important thing they had to find out was size, tonnage and cost of fuel being used.

Mr. Decker has six service men in his employ.

Building served by stokers illustrated on preceding page

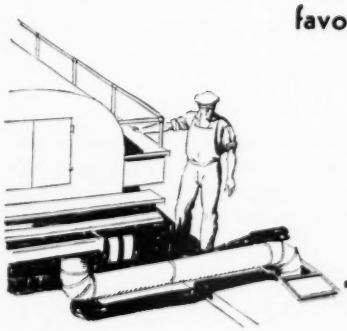
MORE HEAT

FORAN

IMPROVED COPPER AND STEEL TUBE BOILER

. . . . burns 1/3 to 1/2 less oil

When a home owner has an oil burner installed, he is going to watch those fuel bills like a hawk and compare them month by month with his old coal bills. The economy in operation of Foran Boilers is making them most popular with oil burner men. Foran Boilers give positive circulation, heat quickly, are fuel savers yet compare favorably in price with standard makes of boilers.



FORAN BOILER CO., INC.
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Please send me without obligation on my part your free booklet describing Foran Improved Copper and Steel Tube Boilers.

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Address.....

FORAN COPPER AND STEEL TUBE BOILERS for OIL-GAS & COAL

MORE HEAT

DESIRABLE TERRITORY AVAILABLE FOR DISTRIBUTORS

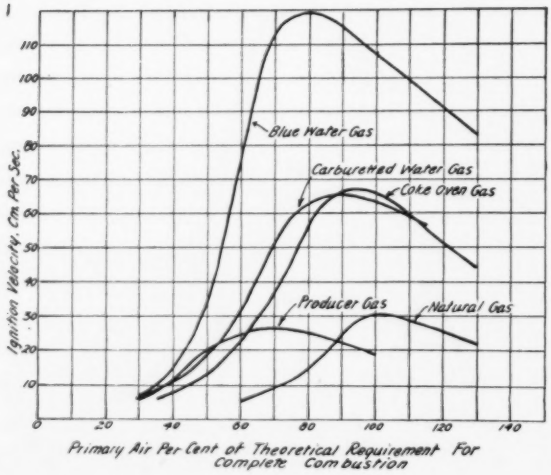
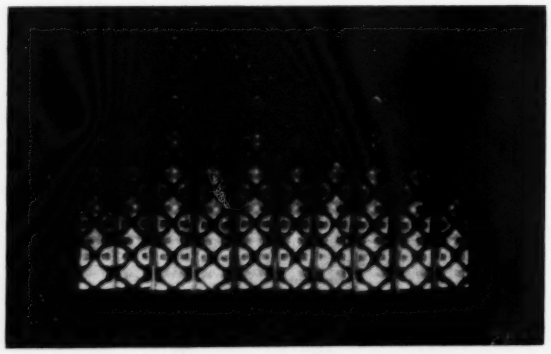

Ignition Velocity, Cm. Per Sec.
Blue Water Gas
Carbureted Water Gas
Coke Oven Gas
Producer Gas
Natural Gas
Primary Air Per Cent of Theoretical Requirement For Complete Combustion

Fig. 1—This chart shows the comparative velocities of natural, coke oven and carburetted water gas. It will be noted that natural gas is slow burning, relatively



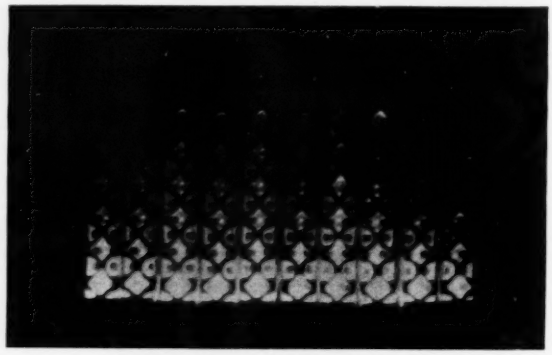


Fig. 2—Above: the heating value of this gas is 959 Btu. per cu. ft. The burner is adjusted for this gas. Below: same adjustment as above with heater operating on gas with heating value of 1,066 Btu. per cu. ft.

Gas Changes and Appliance Adjustments

By F. R. WRIGHT

THE many changes that are being made in gas supplies through the extension of natural gas lines, the mixing of natural gas with manufactured gas and other developments, in some instances are of such magnitude as to necessitate the readjustment of appliances.

In order to adjust gas appliances to perform properly it is necessary to have at least some knowledge of the characteristics of various gases.

The following table shows some of the more common types of city gases with analyses which are typical for them.

It will be noted that the above gases may be divided into four more or less distinct classes, the first including gas 1, the second including gases 2, 3 and 4, the third gases 5 and 6, and the fourth gas 7. This grouping is based upon the general composition of the gas, the general effects of which will be discussed later in this paper.

Natural gas has been listed first since its use will constitute a considerable part of the subsequent discussion of this topic.

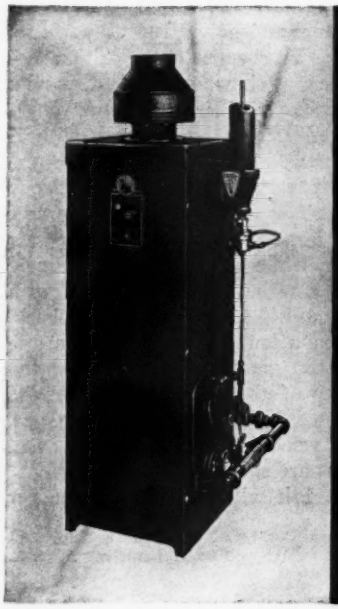
Improved pipe lines and other transmission equipment together with the development of large reserves of natural gas, have greatly multiplied the distance for which it can be economically transported. As improved facilities have greatly increased the economic distance of

Component Gases	Constituents—Per Cent								Blue Gas %	Hydro-Carbons %	Inerts %	Sp. Gr. Air = 1.0	Heating Value Btu/Cu. Ft.	Air Req'd Cu. Ft./Cu. Ft. Gas
	CH_4	C_2H_4	Ills.	CO	CO_2	H_2	O_2	N_2						
1. Natural	83.0	16.1	0.8	....	0.1	....	....	....	....	99.9	0.1	.668	1122	10.70
2. Coke Oven	29.0	0.4	2.4	5.6	1.2	55.7	0.9	4.8	61.3	31.8	6.9	.370	550	4.73
3. Coal Gas	31.4	.....	2.2	8.6	1.5	52.5	0.3	3.5	61.1	33.6	5.3	.420	575	5.00
4. Oil Gas	25.4	.....	4.8	6.8	1.0	59.2	0.1	2.7	66.0	30.2	3.8	.350	575	4.91
5. Carb. Water Gas	11.0	0.9	10.1	30.8	2.6	35.4	0.9	8.3	66.2	22.0	11.8	.640	560	4.72
6. Low Gravity Water Gas	15.4	1.3	7.4	22.1	3.2	45.9	0.4	4.3	68.0	24.1	7.9	.544	554	4.75
7. Butane—Air	Butane 17.2						17.3	65.5	....	17.2	82.8	1.163	550	4.50

AUTOMATIC HEAT SECTION

INSTALLATION

Made easy by Bryant design



BRYANT boilers are designed and built to make their installation easy, accurate and trouble-free. Every one is completely assembled in the Bryant factory, and cannot be passed for shipment unless every part fits perfectly.

The 253 (small boiler) is shipped already assembled, with legs cast as part of the end sections. All that is needed is to stand the boiler on the floor and add controls and cover.

Boilers 443, 445 and 63 have a cast iron base with a ledge at front and back. Simply set each section on the ledge and slide it up to the sections already in place. Since surfaces are all automatically machined, they fit without effort, and slip nipples slide into place without a hitch. There's no blocking up necessary with a Bryant, and none of the forcing to produce a fit which in other jobs often results in a broken slip nipple or section and costly rebuilding.

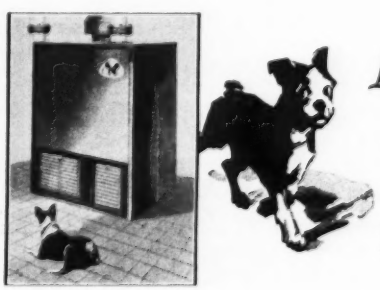
A Bryant comes to you carefully packaged, in units planned for easy handling. Each piece of the cover, with its thick insulation already attached, is protected by waxed paper so that no touching up of the paint job is ever necessary.

Each control is assembled, with its tubing already bent to fit, and the entire control system has been assembled and tested under actual-use conditions so that you have no alteration or repair work either at the time of installation or after.

Because everything in a Bryant installation job goes like clock-work, you can figure time accurately in advance, and know that you are going to make a definite predetermined profit. And you leave the job knowing it is done, with no expensive call-backs for adjustment. Bryant boilers are designed with the steamfitter, as well as the ultimate user, in mind.

The Bryant Heater & Mfg. Company, 17836 St. Clair Ave., Cleveland, makers of gas boilers, furnaces and air-conditioning units. Specialists in utilizing gas to bring comfort into the home.

BRYANT
***Automatic* GAS**
HEATING



Lets your pup be your furnace man

AUTOMATIC HEAT SECTION

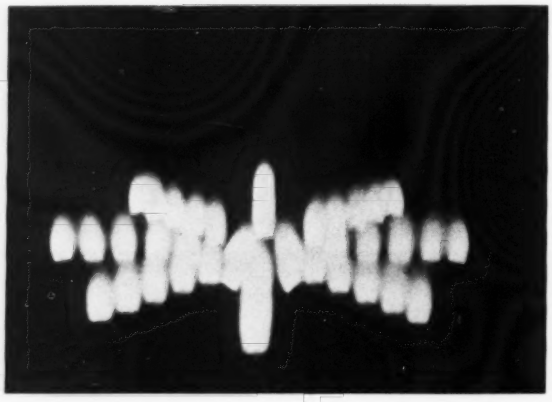


Fig. 3—Burner adjusted for and operating with gas having specific gravity of 0.64 (Inerts 10.9 per cent)

various mediums of communication during recent years, so have developments in the natural gas industry brought the great centers of population and industry closer to the base of supply of this great natural resource.

There are now approximately 112,000 miles of gathering, transmission and distributing natural gas mains in the United States. Upwards of $450,000,000 was expended by the American gas industry in 1931 for additional natural gas lines. Natural gas lines now stretch across the country in every direction, supplying gas to cities located as far distant as 1,000 miles from the source of supply. In 1930 the sale of natural gas for domestic, commercial and industrial heating amounted to 1,941,000,000,000 cubic feet. It is estimated that there is a reserve supply of natural gas amounting to approximately 34,054,500,000,000 cubic feet, with new gas fields being discovered regularly. Consequently, the importance of this type of fuel is quite evident.

Natural gas, unlike manufactured gas, contains no hydrogen. It is composed largely of methane and ethane which are slow burning constituents. Manufactured gases, on the other hand, usually contain high percentages of hydrogen, which has a high ignition velocity, practically no ethane, and only 10 to 30 per cent methane. The difference in chemical composition between the two types of gas, as shown in Table 1, results in rather distinct differences in their combustion characteristics. Manufactured gas usually burns with a short sharp flame with a well defined blue inner cone when used in a bunsen type burner, having a tendency to flash back through the burner ports and mixing tube where the ports are too large or too much primary air is admitted to the burner, while natural gas is relatively slow burning, producing a rather long lazy flame, with an indistinct inner cone, and is not likely to flash back. The flames, however, have a tendency to blow from the ports if the pressure is too great or the ports are too small so that the velocity of the gas issuing from the ports is greater than the ignition velocity of the gas. The comparative ignition velocities of natural, coke oven, and carburetted water gas are shown in Fig. 1.*

By referring to Table 1 it will be seen that the per

*Taken from paper by John Corsiglia, "New Method for Determining Ignition Velocity of Air and Gas Mixtures," A. G. A. Monthly, October, 1931.

"SPEND FOR THE HOME IN 1932"

Gas Heat Is The *Ideal* Automatic Heat!

This Statement Cannot Be Questioned

True there has been two objections to gas heat, the fuel cost of gas and the cost of equipment with which to use it.

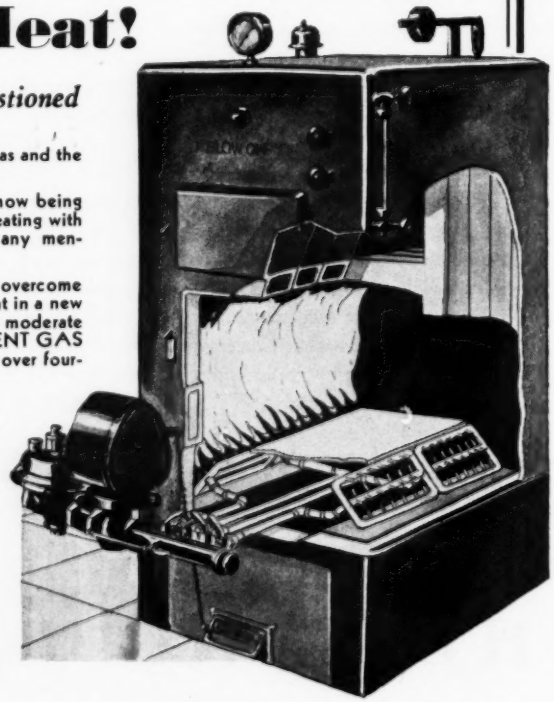
Thousands of towns and cities throughout the United States are now being supplied with natural gas at a fair price which makes the cost of heating with gas compare most favorably with coal and oil. This is without any mention of the cleanliness and convenience of using gas.

BARBER AUTOMATIC CONVERSION GAS BURNERS overcome the second objection. It is not necessary to invest a large amount in a new boiler or furnace, but instead, convert with Barber Burners at a moderate cost, the present coal fired boiler or furnace into a most EFFICIENT GAS HEATER. This has been proven by many official tests, also by over fourteen years of service.

Remember, there are at least two more months of spring heating—your customers will be interested in the cost of enjoying gas heat.

THE BARBER GAS BURNER CO.
3702-04 Superior Ave. CLEVELAND, OHIO

BARBER
Automatic Jet Gas
BURNERS



cent of blue gases and hydrocarbons in the coke oven and carburetted water gases are very similar, accounting largely for the similarity of the ignition velocity curves. Natural gas, on the other hand, contains no blue gases but has a high percentage of hydrocarbons accounting for the much lower ignition velocity shown by the curve.

The difference in chemical composition of the gases is primarily responsible for the difference in the character of the flames. Although changes in heating value and specific gravity have distinct effects upon the nature of gas flames, these cannot occur without a corresponding change in chemical composition. However, as the chemical composition of the gas supply in any given case is seldom known by the appliance adjuster, and as the change in heating value (and possibly the specific gravity), is the factor upon which the readjustment of the appliance is based, a brief discussion of the two elements mentioned may prove helpful.

EFFECT OF CHANGE IN HEATING VALUE

In the early history of the gas industry in this country the useful energy available in a given quantity of gas was referred to in terms of so many candlepower. The reason for this is quite obvious when it is realized that gas at that time was used principally for lighting purposes. As electricity replaced gas for lighting, the latter came to be more generally used for various heating purposes. As developments took place in this field, the advisability of adopting some other standard designation for the energy content of gas became evident. The heating value rather than the illuminating value of the gas supply became the important factor. Consequently the use of the designation of B.T.U. (generally written Btu) per cubic foot of gas came into use. B.T.U. or Btu is the abbreviation used for British Thermal Unit and is generally defined as the amount of heat required to raise the temperature of one pound of water (a little more than a pint) one degree Fahrenheit with the temperature of the water at the start at 60 deg. Fahr., and under standard atmospheric conditions of 30 in. of mercury pressure.

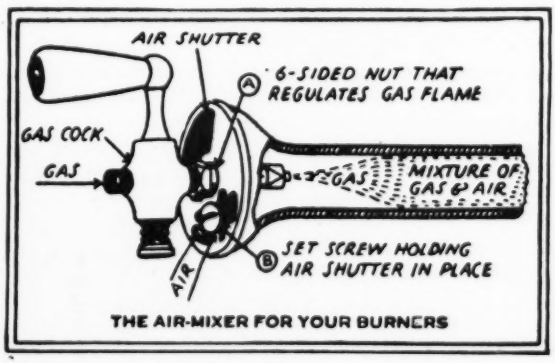


Fig. 4—This shows a common type of gas cock and burner

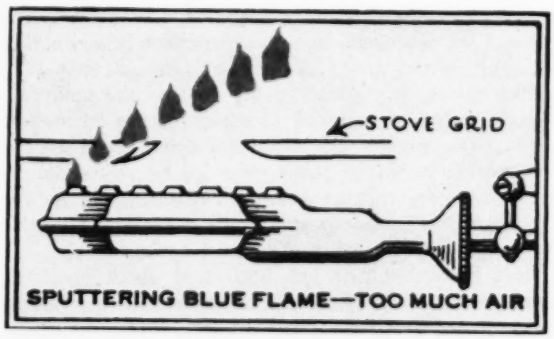


Fig. 5—This illustrates a condition where the air shutter of a gas range top burner is opened too wide causing lifting or blowing of the flames

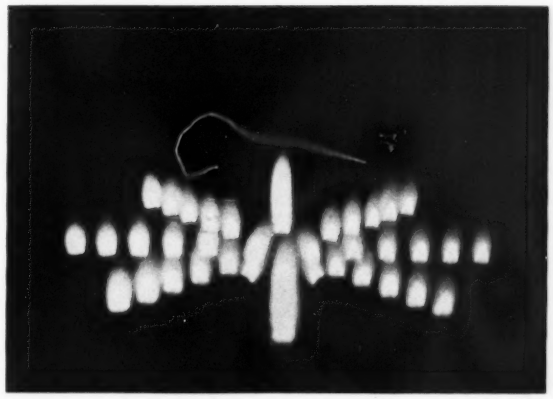


Fig. 6—Same adjustment as Fig. 3 burning gas having specific gravity of 0.75 (Inerts 29.4 per cent). Figs. 3 and 6 show the effect of a specific gravity increase on flames of gas range top burner

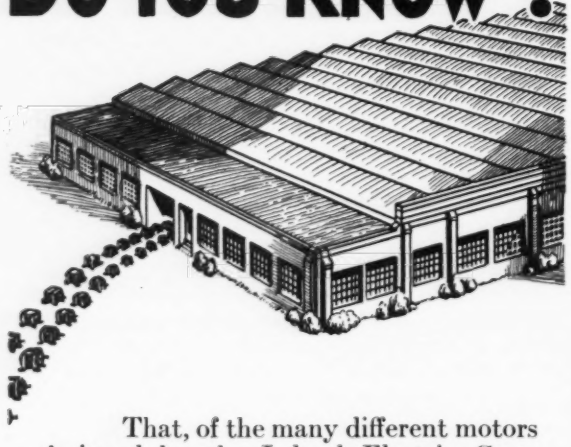
A cubic foot of gas may be defined as the amount which would occupy one cubic foot of space, or as the amount that would be contained in a cubical box with 12-in. sides, at a temperature of 60 deg. Fahr. when saturated with water vapor, and under a pressure equivalent to that of 30 in. of mercury.

The heating value of natural gas varies from about 850 to 1,200 Btu. per cu. ft. depending upon the field from which it is taken, the average being about 1,050 Btu. per cu. ft. Let us now consider the effects of a change in heating value of the gas supply in relation to appliance performance. A change in heating value per cubic foot affects the Btu's. delivered through the burner. If a gas burner is properly adjusted for a 550 Btu. per cu. ft. manufactured gas and the gas supply is changed to natural gas of 1,100 Btu. per cu. ft. without compensatory changes in burner adjustment, approximately twice as many Btu's. will be delivered through the burner, depending, of course, somewhat on the specific gravities and pressures of the two gases. The air required for complete combustion is almost proportional to the heating value of the gas. Consequently in the above case approximately twice as much air would be required for natural gas as for the manufactured. The theoretical amount of air required for complete combustion of various common gases is shown in Table 1. With a burner adjusted for manufactured gas an increase in heating value will result in a greater heat input, larger and softer flames, and possibly incomplete combustion. Because of the higher heating value of natural gas, compensation in the adjustment of the burner is usually necessary to secure proper combustion.

When changing the adjustment of a burner from

AUTOMATIC HEAT SECTION

Do You Know?



That, of the many different motors designed by the Leland Electric Company, one in particular should interest readers of Domestic Engineering—the cradle mounted motor shown below.

That this specially designed unit, now in general use on stokers, oil burners, refrigerator compressors and other appliances demanding quietness in operation, owes much of its success to these features:

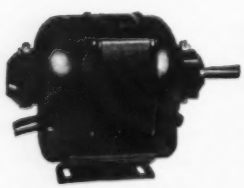
Rubber - impregnated spring mounting that completely isolates vibration within the frame structure—

Brush-lifting mechanism that eliminates brush noise and wear—

Generous bearing design coupled with self-filtering lubrication that prevents bearing trouble and noise.

Inherent quietness due to a slot ratio chosen for constant permeance regardless of rotation, making the motor quiet magnetically.

For a further discussion of this motor in relation to its use on stokers, oil burners, etc., consult Bulletin No. 28.



The Leland Electric Co.

Dayton, Ohio U. S. A.

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Leland Motors

manufactured to natural gas, however, the orifice size is reduced thus reducing the volume of gas, since the heating value of natural gas per unit of volume is approximately twice that of manufactured gas. This being the case the same amount of air must be injected by the natural gas with half the volume as was injected with the manufactured gas. To accomplish this properly a readjustment of the air shutter must usually be made.

The effect upon the nature of the gas flames of an increase in heating value of the gas without compensating adjustment is illustrated by Fig. 2. The flames streaming out of the top of the radiants on the higher heating value gas will be noted.

EFFECTS OF CHANGES IN THE SPECIFIC GRAVITY OF THE GAS

In order to adjust gas appliances to give satisfactory service it is necessary to understand the principal factors influencing their performance. One of these is the specific gravity of the gas being utilized. The amount of primary air entrained into a burner by gases of different specific gravities has been discussed briefly in a preceding paragraph. It is directly proportional to the momentum of the gas stream which is the mass multiplied by the velocity. Consequently an increase in specific gravity will increase the amount of primary air entrained by the same volume of gas, resulting in harder and sharper flames with a tendency toward flash back. A decrease in specific gravity, on the other hand, results in a decrease in the amount of primary air entrained with a tendency toward softer flames and possibly incomplete combustion. Fig. 2, illustrates the effect upon the character of flames resulting from an increase in the specific gravity of the gas.

In readjusting an appliance from manufactured to natural gas, the gas rate as already pointed out must be reduced in order to maintain the same delivery of heat. The rate of gas flow at a given pressure through the orifice of the gas cock and into the burner is inversely proportional to the square foot of the specific gravity, so that if a 0.65 specific gravity natural gas is substituted for a 0.40 specific gravity manufactured gas, the natural gas rate will be 78.4 per cent of the manufactured gas rate according to the following formula:

$$\sqrt{\frac{0.40}{0.65}} \times 100 = 78.4\%$$

Inasmuch as the average heating value of natural gas (about 1,050 Btu./cu. ft.) is approximately twice that of manufactured gas (537 Btu./cu. ft.), a supply of natural gas at only about 50 per cent of the manufactured gas rate is required to maintain the same heat input. Consequently, the additional reduction in the gas rate necessary can be taken care of by adjusting the burner, the adjustment involving a reduction in the size of the gas orifice as by regulation with an adjustable orifice or by replacement of a fixed orifice.

Thus far very little has been said about appliance adjustments. Consequently, the balance of the discussion will be devoted to that subject. The discussion will be confined to domestic appliances, and although the practice outlined may not be applicable to industrial appliances, they may be generally followed in the case

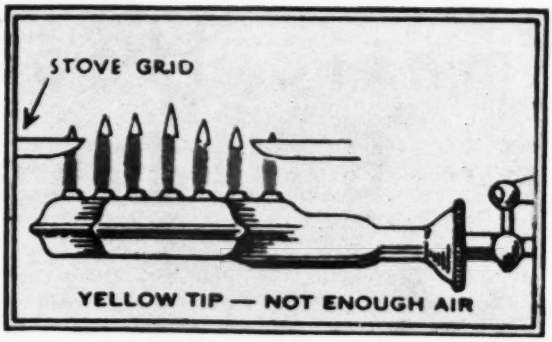


Fig. 7—This illustrates a condition where the air shutter is closed too far causing the flames to burn with yellow tips

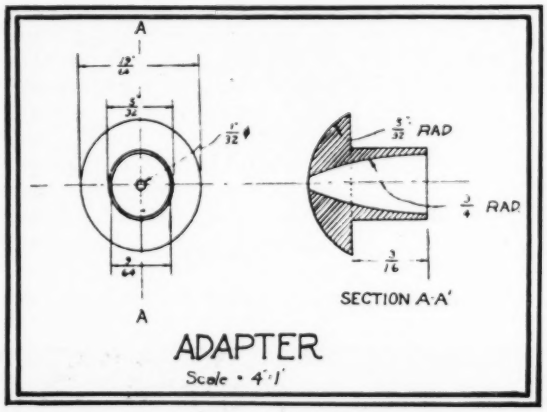


Fig. 8—When orifices are too large, new orifices of the proper size should be used or an adapter or insert orifice should be installed

of commercial appliances such as hotel and restaurant ranges, etc.

ADJUSTMENTS IN GENERAL

It may be necessary in some cases to drill out the burner ports to a larger size to prevent the flames from lifting or blowing away from the ports. This condition results from the slower burning characteristics, or low ignition velocity, of natural gas. A.G.A. approved appliances are required to operate satisfactorily on both manufactured and natural gas, consequently little trouble should be experienced from this source with such appliances. It must be borne in mind, however, that some appliances have been approved with separate sets of burners for natural and manufactured gas, in which case it will be necessary to remove the manufactured gas burners and replace them with the natural gas burners. A high percentage of the appliances in service, however, are of the older and unapproved type. Many of these are so designed that they may require considerable remodeling in order to convert them to perform satisfactorily on natural gas. Burners may have to be replaced with others. Some gas cocks will be found with no removable spuds but having the orifice drilled into the gas cock casting. In such cases new gas cocks probably will be required. These and many other difficulties will likely be encountered with old and unapproved appliances.

The great majority of domestic gas appliances are equipped with burners of the Bunsen type, in which case it is necessary to give special attention to the primary air supply, which is usually controllable by means of an air shutter attached to the mixer face of the burner. A Bunsen burner, which is named after the inventor, is one that draws in primary air which is mixed with the gas prior to burning. It usually consists of a mixer head, throat, mixer tube, and burner head. After burners are adjusted to consume the proper amount of gas the primary air supply should be regulated by changing the position of the air shutter until flames having well defined inner cones are produced. Fig. 4 shows a common type gas cock and mixer. Fig. 5 illustrates a condition where the air shutter of a gas range top burners is opened too wide causing lifting or blowing of the flames. This condition is sometimes caused by the burner ports being too small, as pointed out previously in this paper. Fig. 6 illustrates a condition where the air shutter is closed too far causing the flames to burn with yellow tips. Incomplete combustion usually occurs in such cases, and the flames will deposit carbon on pans placed over them.

The practice of peening down the size of orifices should not be resorted to, as permanent satisfactory adjustments are the exception rather than the rule with this method. When orifices are too large, new orifices of the proper size should be used, or an adapter or insert orifice should be installed after the original orifice has been drilled out to accommodate it. This insert or adapter is installed by reaming out the original orifice to the size of a No. 20 D.M.S. (Drill Manufacturer's Standard), which is the size of the shank on the adapter. The adapter is then inserted and the end spread out like a rivet by using an expanding tool. See Fig. 7.

THE ADJUSTMENT OF RANGES

In adjusting ranges, ovens are usually adjusted first, after which they should be allowed to operate with the oven and broiler door closed to see that the flames do not smother out. All A. G. A. approved ranges are tested and approved for use with both types of gases so no difficulty should be experienced from this source on such appliances. If there is a damper in the flue pipe it should, by all means, be removed. No restrictions of any kind should be placed in the flue. If down-draft or excessive up-draft conditions exist, a properly designed draft hood should be installed in the flue pipe between the appliance and the chimney flue.

Oven pilots should be set so the tip of the pilot does not project into the burner flame, as that would cause burning off of the pilot tip. The pilot flame should, however, strike the flame of the oven burner. The by-pass gas supply to the oven, where the oven is equipped with a thermostat, should be so regulated as to produce flames on the oven burner about ⅛-in. long when the thermostat is turned so as to be in the completely closed position. The adjustment of the by-pass gas supply is made after the oven is allowed to become heated to a temperature above that produced by the by-pass flame, say around 300 to 350 deg. Fahr. Most thermostats are provided with a capped adjusting screw for regulating the minimum or by-pass flame. However, one type of thermostat is provided with a spud having a fixed orifice which must be changed.

Automatic Heat in a Cemetery Building

By THOMAS R. SHAVER

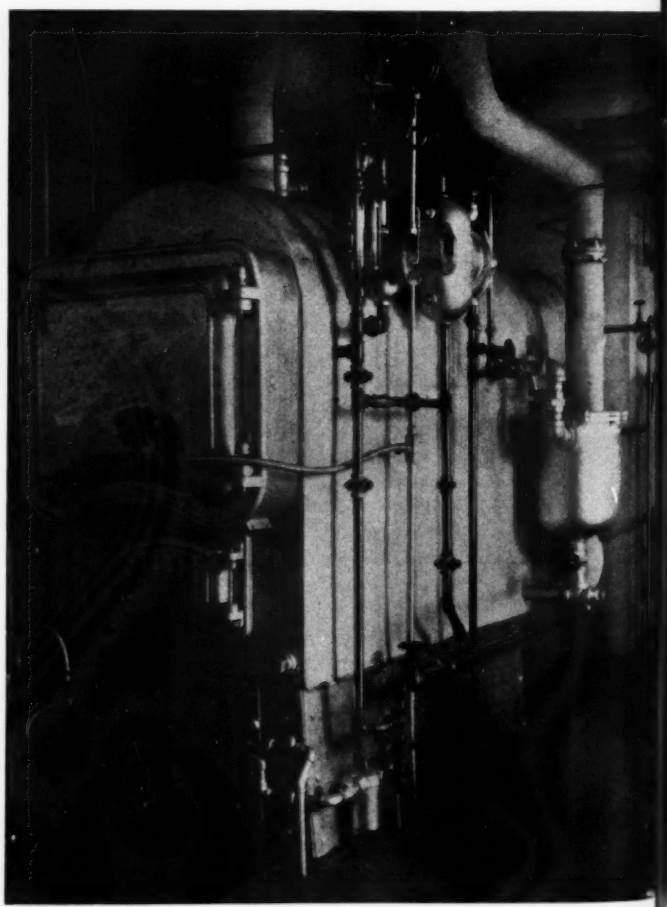
ONE of the cemeteries just a few miles outside of Chicago, to the southwest, is at present completing a new adminstration building which will contain offices for the management of the institution, and rooms for the convenience of visitors and employes. The building is equipped with a steam heating plant, and an indirect heater for making use of the steam boiler to heat water. The plant has been designed for double duty operation to furnish heat and hot water in the winter, and hot water only in the summer. Each arrangement is provided for with controls that are fully automatic. During the spring and fall months there are frequent large temperature changes from day to day, and often during the day. Economy in operating the plant was desirable, and running on summer control whenever possible was recognized clearly as a means of reducing fuel consumption. At the same time, the automatic controls had made manual tending of the plant unnecessary, so there was no employe to assume the responsibility of watching outside temperature conditions. An outside thermostat was decided upon to complete the mechanization of the system by switching the plant from one control to the other, according to outside temperature and consequent need, or lack of need, for heat.

The building is a light gray stone structure of fine appearance. The finish inside includes a generous use of beautiful stone, tile and wood, and the whole effect, contrary to the natural expectation, is one of dignity with the cheerfulness that comes from a skillful use of colors and light. And, strange as it may seem (it was a pleasant shock to the writer) the boiler room has been treated as a member of the family rather than a step-child. It is as completely equipped and as well-finished as any part of the building.

This unusual boiler room has a heating boiler burning oil, duplex vacuum pumps, and, as stated, an indirect heater for furnishing hot water for lavoratories and sinks. Fuel storage is in a 3,000 gallon tank underground. There is individual room temperature control by means of thermostats and compressed-air operated radiator valves.

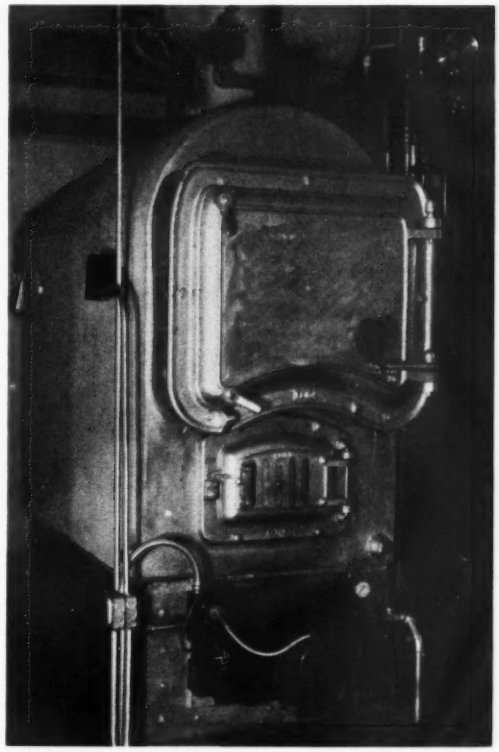
The oil burner is controlled primarily by a pressure switch which keeps the boiler operating at the desired pressure during the heating season so that steam is available whenever any room thermostat calls for heat. There is a low-water switch which shuts off the burner if water ever becomes dangerously low due to failure of the return water or feed water supply systems, both of which are automatic. A stack switch on the front of the boiler, set for 30 seconds, shuts off the burner automatically if ignition of the oil for any reason is not accomplished in that length of time, when the pressure-stat call for steam. Oil is brought to the burner by a small pump included in the burner assembly, so there is no inside gravity tank. Ignition is a process of sending electric sparks across the path of a gas stream which in turn is directed across the burner nozzle and fires the oil vapor.

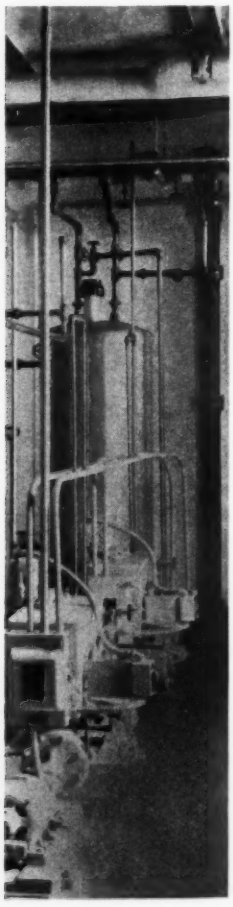
There is a temperature switch in the boiler which

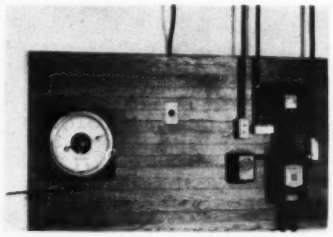


In this view, the water feeder, the indirect water heater for the domestic supply and the low water cut-out are shown. All of the pipe lines are painted in various colors to distinguish them according to their services. The vacuum pumps are shown in the next illustration with the hot water storage tank in the background

keeps the boiler water at a temperature between 140 and 160 deg. Fahr. This control is used for water heating purposes only. The winter, or heating control, as was described, is by means of a pressure-stat. The owner wished to avoid the necessity of manually cutting out one control or the other. He wanted the plant to operate automatically in all details. In order to carry no steam when there is no heating demand, an outdoor thermostat was located on the north side of the building where it is shielded from the sun. It was connected so as to cut in the proper control for operating the boiler under different services at all times. When the outside temperature is high enough to make heat unnecessary in the building, the thermostat switches the control to the summer, or water temperature setting. The control selection by the outdoor thermostat is particularly useful in spring and fall days when the temperature during the middle of the day remains fairly high and no steam is required for several hours. At the same time the boiler water is always hot and steam is produced promptly when required. There is a very fine oil gage, shown in one of the photographs, which indicates the amount of fuel in the tank at all times. The gage is operated by a float in the tank, which in turn actuates a pair of bellows in the instrument case. The machine can be set for oils of a different gravity, which is necessary for real accuracy as the float position with respect to the oil surface depends on the specific gravity







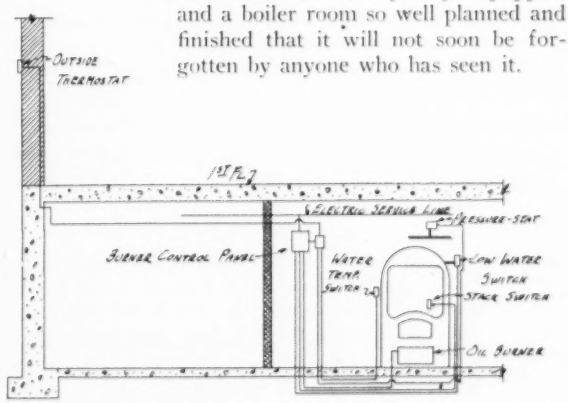
The water temperature switch is shown on the left side of the boiler. The stack switch is on the front of the boiler above the burner and the pressure switch is the instrument at the top of the picture, just to the left of the round pressure gage. On the control panel at the left the oil gage is the round instrument. When the grade of fuel oil is changed to one of a different gravity, the gage is adjusted accordingly

of the liquid. At present the fuel used is of 18-20 gravity (Number 5) and the gage is adjusted for that oil.

The architects for this building, specified brass for pipe built into walls and ceilings where leaks would cause heavy damage to decorations and finishes. The heating contractor handled the entire job including the oil burner installation on a lump sum basis under the specifications. He did not, however, hesitate to suggest better materials and equipment than called for wherever there was room for improvement and several such improvements were made. The heating contractor is justly proud of the service rendered by his organization and the results accomplished.

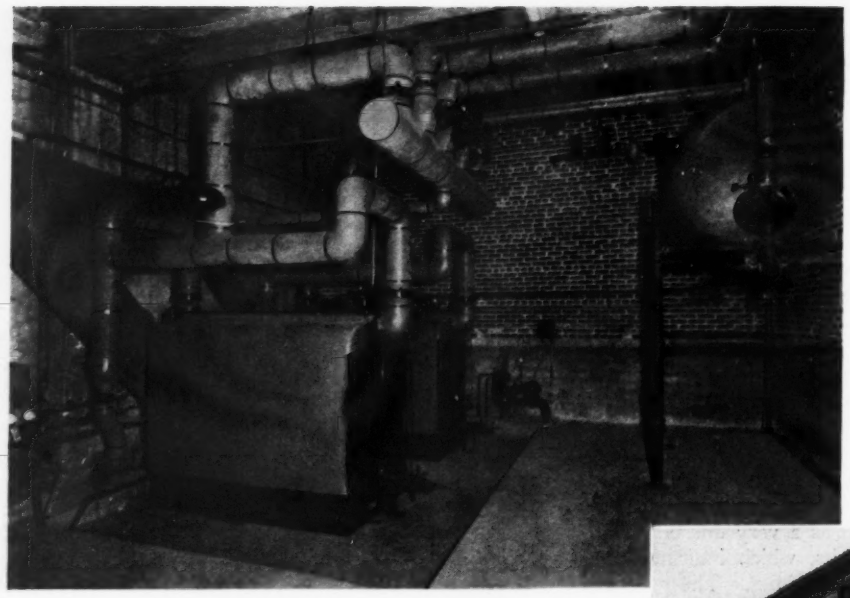
The manager of the building and ground apologized to the writer for the appearance of the boiler room, because it was in need of redecorating. After an inspection, if there were any finger marks on the painted plaster walls, or mars on the varnished wood panels, they escaped notice.

This installation shows a heating plant made fully automatic and completely equipped, and a boiler room so well planned and finished that it will not soon be forgotten by anyone who has seen it.

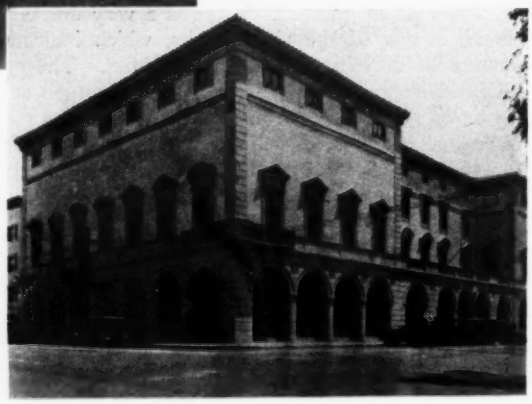


This diagram indicates the wiring for the several controls. The outside thermostat regulates for summer and winter operation

AUTOMATIC HEAT SECTION



This exceptionally good looking heating and oil burner installation was made by C. H. Julian of San Diego, California, for the Elks building shown below



Oil Burner Job for Southern Climate

By TOM WHITE

THE home of the San Diego, Calif., Elks is one of the finest on the West Coast, being completed at a cost of $350,000. Naturally, such an edifice calls for the most adequate type of heating plant. A certified heating job was installed by the contractor, C. H. Julian of San Diego. George Schofield of Los Angeles laid out the heating and ventilating plan for the architects, Quayle Brothers.

San Diego is famed the world over for its uniformly mild, delightful climate, but there are times when heat is required. As a rule the temperature does not fall below 42 deg. Fahr. for more than three or four hours on the coldest days, but there are isolated cases when the mercury has been known to touch 30 deg. Fahr. In view of these weather conditions, radiation requirements were figured at about one-third less than is customary for average climatic conditions.

The Elks building installation is a vacuum job of 30,000 feet of radiation. The main lodge room and ball room are provided with a unit hook-up, and in conjunction with the ventilating system may be heated as one room, or they may be warmed separately. Temperatures in both rooms are thermostatically controlled. The dining room is equipped with concealed units and this, too, may be heated individually. As seen in the accompanying illustration, there are two sectional boilers set in the basement each having a rating of 7,200 sq. ft. of radiation. They are fired by oil burners. Located one foot below the boiler-room floor is a 2,000-gal. fuel oil storage tank.

Hot water is delivered through an overhead circulating system from the 1,000-gallon storage tank seen in the basement view, the heating unit in the tank being fed with steam directly from the boilers.

There are eighty-three plumbing fixtures installed in this modern building. In the basement there is a shower-room which adjoins the bowling alleys and on the third floor another shower-room is provided for those using the gymnasium. Five ice water drinking fountains are placed at convenient points throughout the building.

The Age of Hand Firing, Like the Age of Hand-Wound Clocks, Is Passing

JUST a few years ago, electric clocks for the average home were unheard of. Today, they are big sellers.

Just a few years ago, automatic heat for the average home was prohibitive because of cost. Today, it is becoming standard equipment for even the most modest homes.

A few years more and hand firing will be as obsolete as horse cars and parlor stoves.

The public wants automatic heat, whether it be oil, coal or gas, and it will get it.

It will get it from you, the foremost automatic heat dealer serving the American public today.

It will want your knowledge of heating, fuels and combustion. It will demand the benefit of your experience in the purchase of oil burners, gas heating equipment, stokers and all their accessories.

Most of you are prepared to help in creating this demand and selling it after it has been brought to its height.

Some more of you want more information on automatic heat. You'll get it in these pages in every issue of DOMESTIC ENGINEERING.

And we invite your inquiries as to the best type and make of automatic heat for you to sell in your community. Write us for advice. Read AUTOMATIC HEAT.

AUTOMATIC HEAT

in

Domestic Engineering

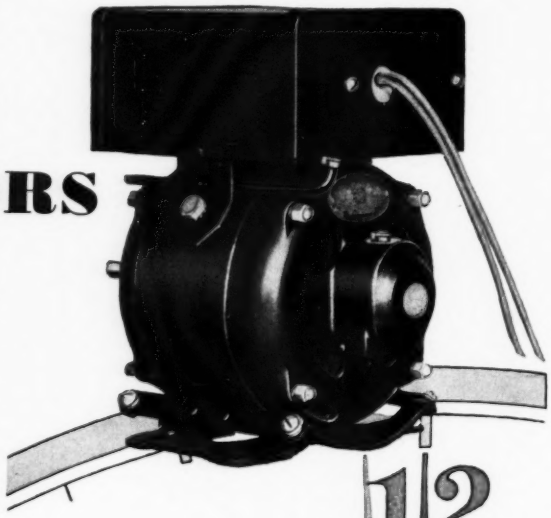
1900 Prairie Avenue ✦ Chicago, Ill.

AUTOMATIC HEAT SECTION

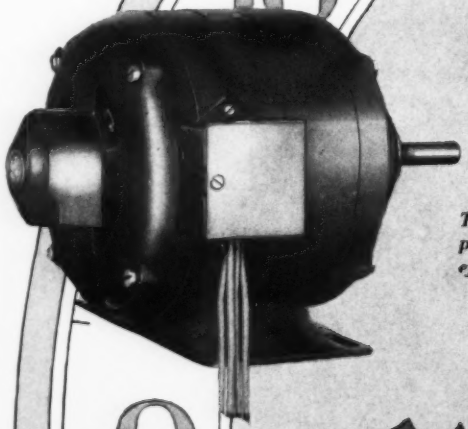
TIME
TO TALK MOTORS

GENERAL ELECTRIC offers a complete line of dependable fractional-horsepower motors headed by the famous Type KC and the equally dependable Type KH. Definitely engineered to meet the performance characteristics of modern oil burners — backed by nation-wide service—these drives offer undeniable advantages to every manufacturer.

It's time to talk motors. See our exhibit in Booths 37 and 38 at the 9th Annual Convention and Oil Burner Show, Mechanics Building, Boston, Mass., April 11 to 16 inclusive; ask our representatives for complete information on G-E motors.



THE TYPE KC single-phase motor with capacitor-transformer unit. Also available with separate capacitor unit



THE TYPE KH resistance split-phase motor . . . an unusually efficient drive with great reserve strength

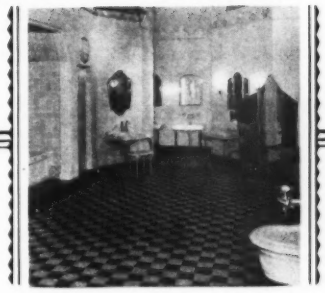
210-177

GENERAL ELECTRIC

SALES AND ENGINEERING SERVICE IN PRINCIPAL CITIES

SUPPLY NEWS

FOR MANUFACTURERS, WHOLESALERS, SALESMEN



WESTERN SUPPLY ASSOCIATION NAMES 1932 OFFICERS

The executive committee of the Western Supply Association met at Del Monte, Calif., March 10, and re-elected the 1931 official personnel to head the organization for the coming year. L. B. Peeples of Crane Company, Los Angeles, is president; Donald L. O'Hair of P. E. O'Hair & Co., San Francisco, is vice president; F. A. Kales of Standard Sanitary Mfg. Co., San Francisco, is second vice president. The executive committee consists of: Francis J. Baker, F. F. Elliott, Donald L. O'Hair and Peter P. Schubert, of San Francisco; Jesse C. Bowles, Myron M. McElwaine and F. B. DeLong, of Seattle; Paul O. Vance and L. B. Peeples, of Los Angeles; E. A. Neupert of Portland, and B. B. Starke of San Diego.

NEW DISPLAY ROOM AND BRANCH OFFICE OPENED BY SPENCER HEATER CO. IN BOSTON

An attractive ground-floor showroom was opened recently by Spencer Heater Co. of Williamsport, Pa., at 96 Brookline avenue, Boston, Mass.

A large plate glass window across the entire front of the showroom makes clearly visible from the street the display of boilers of various types and sizes, on the sales floor. The central feature of the display is a "cut-away" boiler, in the window, with the front section removed to demonstrate the construction features. A facsimile fire effect is produced in the fire bed.

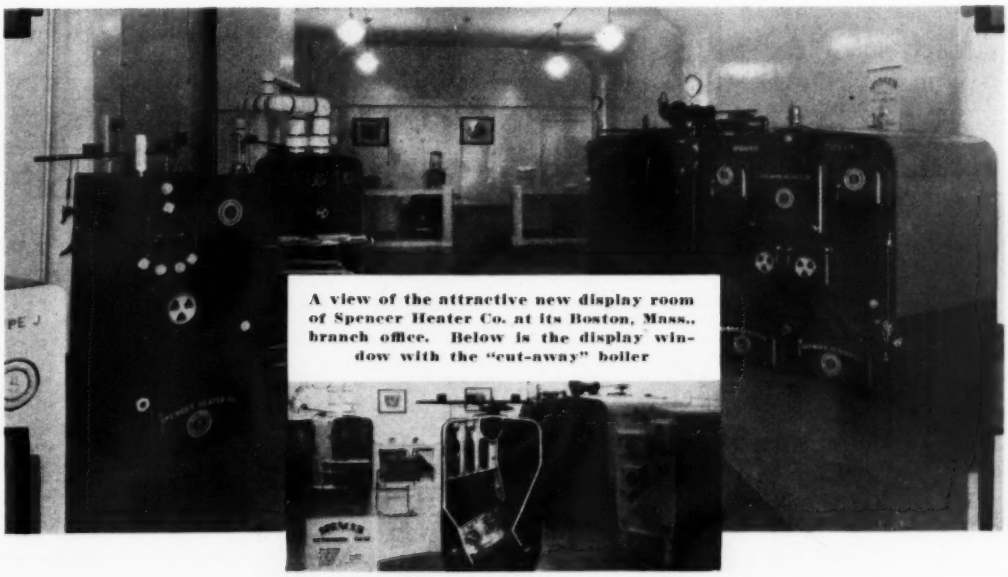
Six boilers, including both cast iron and steel units of various sizes, are shown on the sales floor. These are painted in contrasting colors, increasing the impressiveness of the display, being especially well set off by the lustrous white walls which make the large showroom look even more spacious.

One of the unique displays is a combination gas-coal boiler under fire. This boiler is completely equipped and piped as it would be for a home installation. A coal fire is maintained, but can be changed instantly to a gas fire, by throwing an electric switch on the wall.

In the rear of the showroom is the branch office of Spencer Heater Co. for the entire New England territory. E. A. MacDonald is branch manager.

OIL BURNER MANUFACTURERS "GROUP" PATENTS

The Timken Silent Automatic Co., Detroit, Mich., and Cleveland Steel Products Corp., Cleveland, Ohio, have grouped their rotary burner patents, according to an announcement just made by Haldeman Finnie of Timken Silent Automatic Co., and W. J. Smith of Cleveland Steel Products Corp. The group includes eight issued patents and thirty-five additional pending applications.



A view of the attractive new display room of Spencer Heater Co. at its Boston, Mass., branch office. Below is the display window with the "cut-away" boiler

IMPERIAL BRASS MFG. CO. NAMES NEW SALES REPRESENTATIVES

Imperial Brass Mfg. Co., Chicago, has announced the appointment of several new sales representatives, Thomas R. Burke, for many years identified with the flush valve industry, is now connected with the company as special representative. He will make his headquarters in the company's New York City office.

Paul V. Clarke, 1108 House building, Pittsburgh, Pa., will represent the company in western Pennsylvania from Harrisburg, excluding Erie and also the state of West Virginia.

Joseph F. Leonard, 1207 Mutual building, Richmond, will represent the company in the state of Virginia. C. C. Bramblett has been named representative in North and South Carolina, Georgia, eastern Tennessee, Alabama and northern Florida. He will make his headquarters at 1820 Sixth avenue, North, in Birmingham, Ala.

Matt Glynn, 1920 Upperline avenue, New Orleans, La., is the representative in Louisiana and Mississippi. M. D. Willhite will represent the company in eastern Texas, with headquarters in the Southland Life building, Dallas.

PURCHASE STOTT STOKER CO.

The Stott Briquet Company, Inc., of St. Paul, Minn., has purchased the Stott Stoker Company, the change affecting only the name of the firm. The management, sales, manufacturing and engineering personnel remain the same. H. C. Richter is general sales manager of Stott Briquet Company, Stoker Division.

CONDUCTS TRAINING COURSE FOR SALESMEN

Thirty-eight salesmen from the company's eastern wholesale distributors attended a three-day training course in pump construction and application, at the main office of Goulds Pumps, Inc., Seneca Falls, N. Y., recently.

The visitors were taken through the Goulds factory and shown how the company's pumps are made. Later, members of the engineering and service departments took pumps apart, demonstrated their working principles, construction features, and applications to various jobs. Mr. Weart, development engineer, spoke on pump installation troubles and their remedies. G. W. Cramer, advertising manager, outlined the company's advertising plans for the year. One entire session, which was in charge of E. F. Leger, manager of industrial and engineering sales, was devoted to industrial pumps and their application. T. I. S. Boak, works manager, spoke on pump manufacture. N. J. Gould, president, spoke on the firm's business position. Group meetings with various department heads, concluded the course.

SILENT GLOW OIL BURNER CORP. BUYS MID-WEST CONCERN

The Silent Glow Oil Burner Corp., Hartford, Conn., has bought the entire assets of the Mid-West Oil Burner Mfg. Co., of Chicago, and will move the western company's equipment to the Hartford plant, according to R. M. Sherman, president of the Silent Glow corporation.

The Mid-West company, of which Albert N. Page is president, has been in business four years and manufactures burners for industrial work.

It is understood that production will continue at the Chicago plant for three months, and will then be transferred to Hartford. The Mid-West company is an international organization, being represented in London, Paris, Stockholm and other European cities and in Australian cities. The Silent Glow Oil Burner Corp. operates branch offices in Chicago, St. Paul, Boston and Montreal, with sales headquarters and branch factory in Montreal.

ARE NAMED DIRECTORS OF WALWORTH CO.

W. B. Holton, Jr., was named treasurer of the Walworth Co., Boston, Mass., to succeed G. A. Ricker, at the recent annual meeting of the company. J. M. Lovejoy, Allen Martin, R. I. Laggren and V. C. Stewart were elected directors, to succeed G. A. Ricker, J. S. Coonley, N. B. Jackson and J. M. Olmstead. Howard Coonley has been re-elected president.

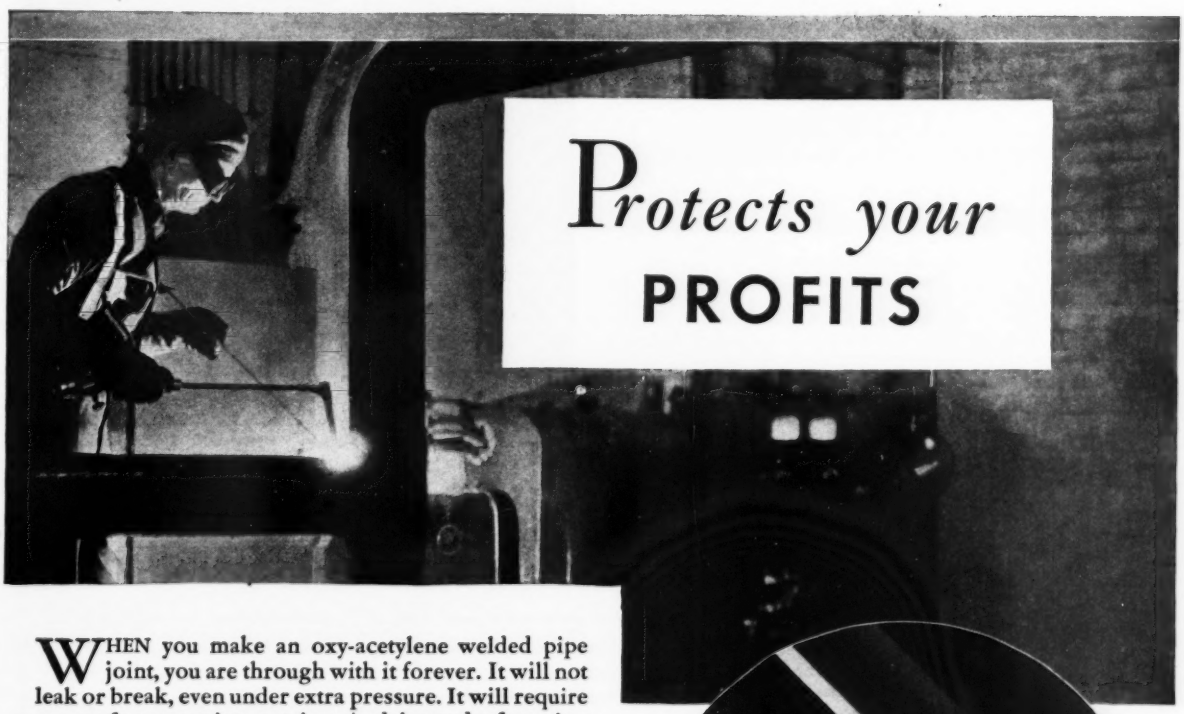
GILBERT & BARKER MFG. CO. ESTABLISHES DIRECT FACTORY BRANCH OFFICES

The Gilbert & Barker Manufacturing Co., Springfield, Mass., announced the establishment, on March 1, of four direct factory branch offices at Springfield and Boston, Mass., Montclair, N. J., and Philadelphia, Pa.

The Springfield branch is in charge of C. S. Gregg, while E. R. Walsh, Jr., is manager of the Boston branch. The branch office at Montclair, N. J., will be managed by K. I. Clisby. The Philadelphia branch is under J. P. Clark.

Group attending the salesmen's training course at the plant of Goulds Pumps, Inc., Seneca Falls, N. Y.

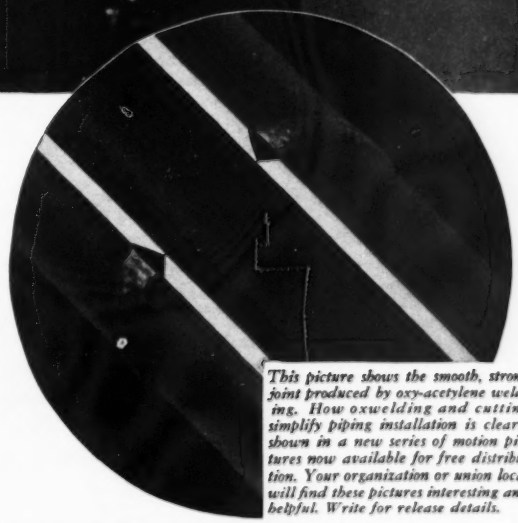
WELDED *Piping . . .*



WHEN you make an oxy-acetylene welded pipe joint, you are through with it forever. It will not leak or break, even under extra pressure. It will require no profit-consuming service. And instead of costing more to make, it will cost you less.

Oxwelded piping is cheaper to install because it eliminates mechanical joints and specials. Welded systems are easier to design, quicker to erect, and less expensive to insulate. Lighter walled pipe can be used, and odd lengths can be welded together to fit any space.

If you are eager to make a bigger margin of profit and to reduce service expenses, our book, "Oxwelded Construction for Modern Piping Services," will tell you how to do it. We will be glad to send you this book without obligation. Or, if you prefer, telephone our nearest District Office and we will have one of our engineers talk the matter over with you.



This picture shows the smooth, strong joint produced by oxy-acetylene welding. How oxwelding and cutting simplify piping installation is clearly shown in a new series of motion pictures now available for free distribution. Your organization or union local will find these pictures interesting and helpful. Write for release details.

THE LINDE AIR PRODUCTS COMPANY

Unit of Union Carbide and Carbon Corporation

126 Producing Plants UCC 627 Warehouse Stocks

IN CANADA, DOMINION OXYGEN COMPANY, LTD., TORONTO

District Offices

Atlanta	Detroit	New York
Baltimore	El Paso	Philadelphia
Birmingham	Houston	Pittsburgh
Boston	Indianapolis	St. Louis
Buffalo	Kansas City	Salt Lake City
Chicago	Los Angeles	San Francisco
Cleveland	Milwaukee	Seattle
Denver	Minneapolis	Tulsa

LINDE OXYGEN · PREST-O-LITE ACETYLENE · OXWELD APPARATUS AND SUPPLIES · UNION CARBIDE

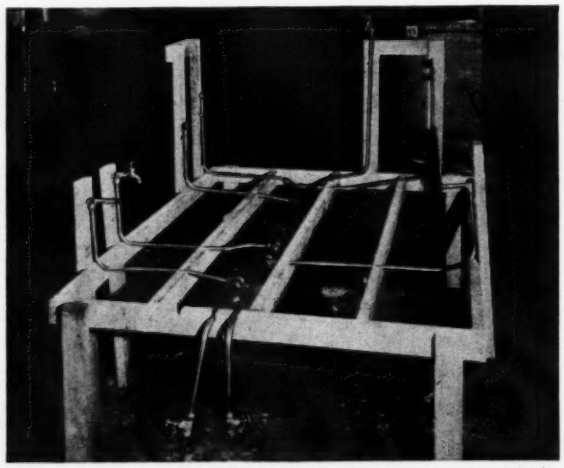
5 gruelling tests *prove Stamina of PR PIPE*

(PAUL REVERE PIPE)

Actual bathroom set-up given 3000 per min. vibration test, 3400 lb. hot water test and other tests far beyond demands of actual service.

If you would like to know what P R Pipe will actually stand, read below about some extremely severe tests at Columbia University, New York.

P R Pipe and compression fittings, as ordered from distributors' stock without special selection, were used. A typical bathroom piping system was set up on a frame to duplicate actual conditions. But the tests put this system under strains and stresses never met with in actual service . . . as the following tabulation shows:



Bathroom Piping set-up of P R Pipe and compression fittings as tested at Columbia University. P R Pipe is 99.9% pure copper free from flaws. It is rustproof, will resist freezing and has effective thickness of S. P. S. (standard pipe size). Joined with compression or solder fittings.

Cold Water Test	Pressure introduced at 100 lbs. Stepped up to 150 lbs. Valves closed	No leaks
Hot Water Test	City pressure raised to 250 lbs. Held. Then pressure was shot up . . . to 1430 lbs. . . . 2400, 3000, 3400!	No leak in pipe
Torsion Tests (for tightness of joints against slippage)	(1) Pipe completely turned 3 times (2) a 2-ft. length of ¾" pipe, tee in center, twisted in machine	(1) Fitting held (2) at 810 inch-lbs. pipe twisted shut but fitting held
Vibration Test	System filled with water at 125 lbs. Vibration from an air compressor on system	Vibrations at 3000 impulses per min. for 30 min. No leaks, no loss of pressure
Deflection Test	A 2-ft. length of ¾" pipe, with tee in center and couplings at end. Full of water at 100 lbs.	Pipe bent in machine to deflection of 4.83 in. in 25⅜ in. of length. No leaks. Pressure raised to 2370 lbs. before leaking

For further information address Revere Copper and Brass Incorporated, 230 Park Ave., N. Y. C.

Revere Copper *and* Brass

INCORPORATED

P R PIPE

Baltimore *Division, Baltimore, Md.* Michigan *Division, Detroit, Mich.* Higgins *Division, Detroit, Mich.*
Dallas *Division, Chicago, Ill.* Taunton-New Bedford *Division, Taunton, Mass.* Rome *Division, Rome, N. Y.*

EXECUTIVE OFFICES: NEW YORK CITY
GENERAL OFFICES: ROME, N. Y.

C. D. S. PRODUCTS CORP. MOVES SALES OFFICES TO CHICAGO

C. D. S. Products Corp., Muncie, Ind., has moved its general sales offices from Muncie to Chicago, Ill. W. J. Walther and E. L. Cook have been placed in charge of the general sales office, which is located at 230 North Canal street, Chicago.

APPOINTS TWO NEW SALES REPRESENTATIVES

The Phoenix Brass Fittings Corp., of Irvington, N. J., has announced the appointment of W. J. Obendorf & Co., 6007 Euclid avenue, Cleveland, Ohio, as its representative in the state of Ohio. Alfred R. Springer, 25 Grand avenue, Rochester, N. Y., has been named the Phoenix corporation's representative for Northern New York state, Albany, Buffalo, and Erie, Pa. Mr. Springer was former assistant sales manager of Hays Mfg. Co. of Erie, Pa.

RESUMES OPERATION ON 90 PER CENT BASIS

Wheeling Steel Corp., Wheeling, W. Va., recently resumed operations on 90 per cent basis at its Benwood plant. Its Martin's Ferry works has also resumed operations. Wheeling Steel Corp. and subsidiaries reports for the year ended Dec. 31, 1931, net loss after all expenses, depreciation and interest of $3,339,139. This compares with net income of $2,688,601 in 1930.

During the year the company reported earnings from operations of $4,334,582 and $500,584 interest and income from investments. Charges against income were $2,902,411 for idle plants and $5,271,894 for depletion and interest.

OHIO BRASS CO. DECLARES DIVIDEND

Ohio Brass Co., Mansfield, O., has declared the quarterly dividend of $1.50 a share on preferred shares, payable April 15 to record March 31.

The company has omitted the quarterly dividend of 50 cents a share on Class A and B common stocks due at this time.

NEW YORK CHAPTER HONORS PRESIDENT ROWLEY

F. B. Rowley, of Minneapolis, Minn., president of the American Society of Heating and Ventilating Engineers, addressed the New York chapter of the society at a dinner given in his honor at the Building Trades Club, New York City, on March 21. A large number of heating and ventilating engineers and their guests were present.

APPOINTS PACIFIC COAST AGENT

The King Union Co. of Hillsgrove, R. I., has appointed the Fletcher-Weil Co. of Los Angeles, Calif., as its representative on the Pacific Coast.

SEATTLE GOLFERS HOLD TOURNAMENT

Clarence Jones, of the Bowles Co., shooting a neat 72, took the first prize in Class A at the monthly golf tournament of the Plumbing & Heating Golf Association of Seattle, Wash., held at the Sand Point Golf and Country club, March 18. E. F. Riley of the Palmer Supply Co. won first in Class B play. W. Granston was first in Class C. Thirty-six members took part in the tournament and many stayed for dinner at the club house in the evening.

INTERNATIONAL NICKEL CO. REPORT PROFIT

International Nickel Co. of Canada, Ltd., for the year ended Dec. 31, 1931, reports net profit of $5,094,497, compared with $11,770,060 for 1930, after deducting full charges for depreciation, depletion, taxes and other reserves.

This is equivalent to 22 cents a share on the outstanding common stock, after allowing for preferred dividends of $1,933,937.76, as compared with 67 cents a common share in 1930. Net earnings thus amounted to more than two and a half times preferred dividend requirements.

Dividend payments for the year on the common stock amounted to $6,560,468, or 45 cents a share.

MAINE SALESMEN CELEBRATE "SILVER" ANNIVERSARY

The Plumbing, Steam and Metal Salesmen's Association of Maine held its 25th annual meeting and dinner at the Cascades, Scarboro, Maine, on March 14. Special arrangements were made to celebrate the association's silver anniversary and approximately 100 members were on hand.

A short business session was held in the afternoon, at which time the following officers were elected for the ensuing year: G. Homer Fraser, R. B. Dunning & Co., Bangor, president; H. W. Knight of Blake-Rounds Supply Co., Portland, first vice president; Owen L. Treat of Jenkins Bros., Boston, Mass., second vice president; P. A. Quimby of Smith & Abbott Co., Portland, third vice president; Frank S. Billings of Harry L. Doten Co., treasurer; Clayton H. Prouty of Standard Sanitary Mfg. Co., Pittsburgh, Pa., financial secretary, and Fred G. Hall of Grinnell Co., Inc., Providence, R. I., recording secretary.

G. Homer Fraser

A resolution of condolence was adopted on the recent death of Ellsworth F. Hayden, past president of the association. The business session was followed by a delicious lobster and steak dinner.

DEATH OF S. N. STEVENS

Sylvester N. Stevens, of the Hills-Stevens Co., manufacturers' agents with headquarters in the Grand Central Terminal building, New York City, died recently as the result of a fall from his room on the 14th floor of a hotel in New York City. Mr. Stevens was in his 36th year at the time of his death and was well known among members of the trade in the East. He was graduated from Harvard University, and was an army officer in the war. He lived with his wife and two children in Scarsdale, N. Y.

FAIRBANKS, MORSE & CO. REPORT SHOWS LOSS FOR 1931

Fairbanks, Morse & Co., Chicago, Ill., reports operating loss for 1931 of $3,012,850 and net loss after inventory write-down and provision for income of subsidiary, of $5,168,054. For 1930 the company reported operating income of $641,729 and net income of $821,612.

After dividends, there was a deficit of $5,894,299, reducing profit and loss surplus to $6,827,473. Balance sheet shows cash of $2,289,490, against current liabilities of $1,526,244. Total current assets were $14,836,212.

Subsidiary debt of $65,000 was paid off during 1931 and the company's own funded obligations were reduced $450,000.

"AIR CONDITIONING" IS PRINCIPAL SUBJECT AT MICHIGAN CHAPTER MEETING

A feature at the recent meeting of the Michigan Chapter of the American Society of Heating and Ventilating Engineers was an address on the subject of air conditioning, by Thomas Chester. His talk was illustrated by models and sketches and the discussion which followed indicated that the members of the chapter are much interested in this subject.

William Boales was appointed to handle the arrangements for those attending the mid-summer meeting at Milwaukee in June. The chapter is considering re-joining the Associated Technical Societies.

MOTOR WHEEL CORP. FURTHER INCREASES FIELD STAFF

Motor Wheel Corporation, Heater Division, Lansing, Mich., has added three more district representatives to its sales staff, in addition to those mentioned in our March 19 issue. They are R. B. Wallace, R. W. Knee and V. C. Page.

Mr. Wallace will serve as district manager for the states of Iowa and Nebraska. Mr. Knee will have jurisdiction over Indiana, Ohio and Kentucky, while Mr. Page will cover the Philadelphia territory and southern New Jersey.

U. S. PIPE & FOUNDRY CO. RELEASES 1931 BUSINESS REPORT

The annual report of the United States Pipe and Foundry Co., Burlington, N. J., for the year ended Dec. 31, 1931, just issued, shows sharp decreases in gross and net earnings. Net income was $1,012,216 after all charges and taxes, against $2,881,046 in 1930. Net last year was equal to 48 cents a common share, against $3.42 a share in 1930 after preferred dividend requirements.

The balance sheet as of Dec. 31, 1931, shows current assets of $17,286,546 and current liabilities of $1,103,838, compared with $18,046,112 and $1,520,053, respectively, at the close of 1930.

DEATH OF FRANCIS S. BUND

Francis S. Bund, who had been assistant manager of the Chicago warehouse of Jones & Laughlin Steel Corp. since 1925, died at his home in Evanston, Ill., recently. He was in his 61st year at the time of his death. Prior to his connection with the Jones & Laughlin corporation, Mr. Bund had been with the Chicago & Alton Railroad.

Business Personals

R. HERFURTH has been named manager of the Rochester, N. Y., branch of the Minneapolis-Honeywell Regulator Co., of Minneapolis, Minn. Mr. Herfurth was formerly manager of the Niagara Falls, N. Y., branch and joined the sales force of the company two years ago at Buffalo, N. Y.

M. WILLIAM EHRLICH, formerly manager at New York City for the Trane Co., La Crosse, Wis., is now chief engineer for the Commodore Heaters Corp., New York.

E. F. ZURN, secretary-treasurer of the Zurn Mfg. Co., Erie, Pa., was injured seriously when the automobile in which he was riding turned over on a highway near Wellsboro, Pa. He was taken to a hospital in the latter city. E. M. REIGER, factory manager, and two other passengers in the car were injured slightly.

JOHN D. SMITH, formerly associated with United States Sanitary Mfg. Co., of Pittsburgh, Pa., is now representing the Grabler Mfg. Co. of Cleveland, Ohio, in the Middle West and Southwest. He will make his headquarters at 7327 Main street, Kansas City, Mo.

ED. O'NEILL, vice president of the Lavelle Rubber Co., Chicago, Ill., was a recent visitor in Colon, Republic of Panama. Mr. O'Neill is combining business with pleasure on his trip.

THOMAS W. PANGBORN, president, Pangborn Corp., Hagerstown, Md., has been named chairman of the governing committee and executive vice president of the Hagerstown Bank & Trust Co., Hagerstown.

JAMES D. CUNNINGHAM, president of the Republic Flow Meters Co., Chicago, and a former president of the Illinois Manufacturers' Association, has accepted the chairmanship of the development committee of Armour Institute of Technology, Chicago. A development program calls for expansion of the institute on the basis of a survey of engineering educational requirements of the Chicago industrial area.

E. W. MORRELL, for the past 11 years identified with the manufacturing and distribution departments of the National Radiator Corp., Johnstown, Pa., has been appointed purchasing agent.

FRANK R. WHEELER has been appointed special sales representative, with headquarters at Chicago, Ill., for the Worthington Pump & Machinery Corp., of Harrison, N. J. He will cover the mid-west territory.

EVINS F. GLORE and ARTHUR GLORE of the Evins F. Glore Co., New York City, left recently for an extended pleasure trip to Bermuda.

EDWARD W. KIPP has resigned his executive position with Goulds Pumps Inc., Seneca Falls, N. Y., to devote his full time to his office as mayor of that city.

J. C. BOWLES, of the Bowles Co., and MYRON MCELWAINE, of the Seattle Plumbing Supply Co., both of Seattle, Wash., Northwest members of the Western Supply Association, attended the recent executive committee meeting of the association in Del Monte, Calif. They report much constructive work accomplished and in progress.

MARKETS

BUSINESS REPORTS FROM LARGE JOBBING CENTERS

A STUDY of the latest trade reviews of several of the larger banking institutions in the country finds all of them agreeing that an improvement in underlying conditions has been evident in business in recent weeks. The trade review of the Guaranty Trust Co. of New York points out that there has been continued improvement in the last few weeks "not only in sentiment, but to some extent also in the more tangible features of the financial situation. The lessening of bank failures and the return of hoarded money into circulation are cited as two definite developments indicating a pronounced change in public psychology.

"As we near the completion of the first quarterly period of 1932, we find that, for a period of ten weeks, business gains have more than equaled business losses but business volume has shown no material change for the period," states the trade digest of the Central Republic Bank and Trust Co. of Chicago. "As prices have receded still further, the volume of business as measured in dollars has recorded a decline. Using the measure of tons and units, there appears to have been a slight gain, meaning that gains have overcome losses by a narrow margin."

The review of the Cleveland Trust Co. of Cleveland, Ohio, says: "Business conditions were genuinely better in March than they were in December, or January, or February, despite the fact that business activity had not increased. . . . In recent weeks there has been a long series of developments that are either directly conducive to business improvement or are safeguards against continued decline."

Reports received from the leading jobbing centers during the past fortnight indicate that business in plumbing and heating supplies changed very little in comparison with the preceding two-week period. Manufacturers state that wholesalers continue to purchase only such material as is needed to keep their stocks at minimum working levels. Producers are in a position to make prompt deliveries.

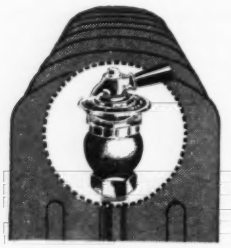
February shipments of range boilers, based on data reported to the Bureau of the Census by seventeen manufacturers, the value of whose output constitutes approximately 90 per cent of the total for the industry, were 37,383 range boilers, as compared with 39,018 in January and 41,944 in February, 1931. Total shipments for the first two months of 1932 were 76,401 range boilers, as compared with 105,977 in the corresponding period of 1931 and 116,527 in the first two months of 1930.

February shipments of domestic water softening apparatus, as reported ta the Bureau of the Census by 24 manufacturers, totaled 321 units having a net sale price of $36,528, as compared with 267 units in January with a net sale price of $31,481, and 591 units having a net sale price of $84,261 in February, 1931. The total for the first two months of 1932 was 588 units having a net sale price of $68,009, compared with 1,255 units having a net sale price of $174,739 in the corresponding period of 1931 and 2,181 units having a net sale price of $271,837 in the first two months of 1930.

January shipments of mechanical stokers, including all types of stokers, based on data reported to the Bureau of the Census by 55 identical manufacturers, were 451 units, as compared with 664 units in January, 1931, and 569 in February, 1931.

January shipments of steel boilers (stationary), based on reports submitted to the Bureau by 72 identical manufacturers, totaled 271 boilers, as compared with 390 in December and 551 in January, 1931.

That's OUR Business



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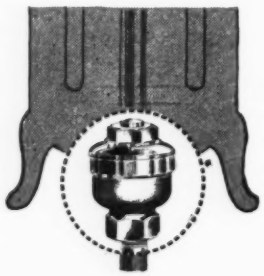

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The Metal Market

	Mar. 28	Avg. Feb., 1932	Avg. Dec., 1931	Mar., 1931
PIG IRON—				
No. 2 foundry, Chicago	$16.50	$16.50	$16.60	$17.50
PLATES AND SHEETS—				
Steel boiler plates, Pittsburgh, per lb.	1.50c	1.50c	1.50c	1.65c
Blue annealed sheets, No. 10, Pittsburgh, per lb.	1.70c	1.70c	1.85c	1.90c
*Hot rolled annealed sheets, No. 24, Pittsburgh, per lb.	2.20c	2.15c	2.40c	2.35c
Galvanized sheets; No. 24, Pittsburgh, per lb.	2.85c	2.75c	2.90c	2.90c
TIN—				
Straits tin (spot) New York	21.75c			
LEAD—				
E. St. Louis	2.90c			

The Old Metal Market
Dealers' Buying Prices

	Per lb.		Per lb.
Aluminum clippings	11½c	Copper, light	2¾c
Block tin pipe	15½c	Heavy crucible copper	3½c
Brass, light	1¾c	Zinc, old	1 c
Brass, heavy yellow	2 c	Lead, heavy	2 c
No. 1 comp. red brass	2¾c	Solder joints (close cut)	3¼c
Heavy copper and wire	3 c		

NOTE: Prices are those quoted on Monday of this week.
*Comparisons are with old classification No. 24 black sheets.

DEATH OF B. B. RUSSELL

B. B. Russell, for many years connected with the plumbing industry in Oklahoma City, Okla., both as journeyman and master plumber, died on March 16 as the result of an automobile accident on March 11. He was buried in Memorial Park Cemetery, Oklahoma City. The funeral was attended by many members of all branches of the industry.

He is survived by his widow, a daughter and a brother, S. G. Russell, president of the Oklahoma City Master Plumbers Association.

DEATH OF ARTHUR D. PARKS

Arthur D. Parks, Rome, N. Y., master plumber, died recently of a heart attack while visiting at the home of a friend. He was born in Williamstown, N. Y., and, after learning the plumbing trade in a New York trade school, was for many years located in Utica, N. Y. Three years ago he moved to Rome where he opened a plumbing establishment.

He was a member of the board of examining plumbers in Rome during the administration of Mayor Tedd of that city.

DEATH OF EDWARD F. KAHL

Edward F. Kahl, plumbing and heating contractor of Detroit, Mich., died recently at Evangelical Deaconess Hospital, in that city. Mr. Kahl had been engaged in the plumbing and heating business in Detroit for approximately seventeen years and had been an active member of the Detroit Master Plumbers Association. His death resulted from injuries sustained in the accidental discharge of his revolver as he was climbing the stairway in his shop. He had been visiting the store frequently lately because of prowlers. He is survived by his wife and two daughters, Margaret and Helen Kahl.

TRADE

NEWS OF PLUMBING AND HEATING CONTRACTORS

HEATING CONTRACTORS PLAN BIG PROGRAM FOR NATIONAL MEETING

Preliminary announcement of the program for the 43rd Annual Convention of the Heating and Piping Contractors National Association to be held at Detroit, Mich., May 16 to 18, indicate that it will be an unusually interesting and valuable series of discussions.

The important phases of heating, piping and air conditioning will be discussed. The first session will be held at 2 p.m. on May 16 in the Book-Cadillac hotel. Ray L. Spitzley, president of the Heating and Piping Contractors National Association will give the opening address.

J. Lawrence DeNeille, national treasurer, will give his report at this time. Joseph C. Fitts, national secretary, and S. Lewis Land, educational director, will also report.

The principal address of this session will be given by Col. James L. Walsh, executive vice president of the Guardian Detroit Union Group, Inc., of Detroit. Col. Walsh will talk on the relationships of the banker and the business man and the status and effect of present business conditions.

At the second session of the convention on Tuesday morning, three papers by secretaries of local associations will be given.

Reports by the Committee on Standards, Richard A. Wolff of New York, chairman, and the Sub-Committee on Boiler Output, Harry M. Hart of Chicago, chairman, will follow the secretaries' papers.

Because of the interest in air conditioning, the association has secured Walter L. Fleisher to speak on this subject.

C. P. Finke of Sheboygan will report on the work of the Committee on Certified Heating of which he is chairman. John H. Zink, chairman of the Committee on Welding, will report for that committee.

First on the Tuesday afternoon program will be the report of the Committee on Separation of Contracts, which will be given by Robert D. Williams, chairman. Walter Klie of Cleveland follows with the report of the Committee on Trade Promotion.

The Third Annual Survey of the Heating Industry which is being made at the present time by Joseph C. Fitts, will be discussed at this session of the convention.

The convention committee of the Detroit association, which is taking active charge of arrangements for the convention, consists of George Freyn, chairman, Charles Gallarno, Clare Davis, Emery Harris, Mrs. Ray Spitzley, Edward Glanz, Harry Nelson, Lawrence McConachie and George Clarke.

CONNECTICUT MASTERS SET CONVENTION DATES

The Connecticut Master Plumbers' Association has selected May 10 and 11 as the dates for its annual convention, which will be held at New Britain. Convention headquarters will be at the Hotel Burritt. C. A. Andrews of New Britain is state president, and K. P. Provost of Meriden, state secretary.

CHICAGO MASTERS WILL CELEBRATE ASSOCIATION'S 50TH ANNIVERSARY

Master plumbers of Chicago and their friends are making no dates for Saturday evening, May 14, for that is the time when the Plumbing Contractors' Association of Chicago will celebrate its 50th anniversary. The affair will be in the form of a dinner-dance and entertainment, and it will be held at the Congress hotel.

COMMITTEE APPOINTED FOR MISSOURI CONVENTION PLANS

The Master Plumbers Association of Kansas City, Mo., has appointed the following committee to arrange for the state convention: J. S. Levene, chairman, Carl R. Smith, William R. Dunlap, A. D. Jacobson and John J. Sherin. The Missouri state convention this year will be held in Kansas City, April 18 and 19, at the Muehlebach hotel. It is planned to have a banquet and dance at the hotel on Monday evening, the 18th.

"ANTI-UTILITY" BILL KILLED IN MISSISSIPPI

The Mississippi Legislature has defeated a bill which would have prohibited public utilities from selling merchandise in the state. The senate voted down the measure by a vote of 27 to 9.

APRIL 4TH IS DATE FOR NEW YORK STEAMFITTERS' CONVENTION

The Heating and Piping Contractors New York State Association will hold its annual convention in New York City on April 4. The convention headquarters will be at the Pennsylvania hotel. William J. Olvany, president of the association, is directing the convention arrangements.

HOLD ORGANIZATION MEETING IN LITTLE FALLS, MINN.

Harvey W. Strader, president of the Minnesota Retail Plumbers' Association, and M. F. Fox, secretary of the association, recently addressed a meeting of master plumbers at Little Falls, Minn., and plans have been made for forming a local master plumbers' association.

MANHATTAN ASSOCIATION HOLDS STAG PARTY

Members of the Manhattan Master Plumbers Association held a stag party recently at the Building Trades club in New York City. Aside from the excellent food and many unusual forms of entertainment, one of the features of the evening was the showing of motion pictures of the Hawaiian Islands and several other places of interest. Milton Schnaier, honorary member of the association, took the pictures himself while on a cruise.

Emanuel Kalish and Henry H. Berg comprised the committee that took care of the arrangements.

PLAN BIG BANQUET IN BOSTON, APRIL 5

The annual joint dinner of the Massachusetts State Association of Master Plumbers and the Massachusetts Sanitary Club will be held in Boston on Tuesday evening, April 5. The affair will be held at the Statler hotel. Prior to the banquet, which will be served at 6:30, there will be a brief reception. The Massachusetts State Women's Auxiliary is also a sponsor of the party.

WISCONSIN STEAMFITTERS PLAN CONVENTION

The Heating and Piping Contractors Wisconsin Association has selected April 18 and 19 as the dates for its annual convention, according to Arthur Bowers, secretary of the organization. The meeting will be held at Wisconsin Rapids, Wis.

CALIFORNIA ANNOUNCES FINAL CONVENTION PLANS

Announcement is made by Harry G. Newman, directing chairman of the general convention committee, that the Hotel Leamington, Oakland, will be official headquarters for the California convention, set for May 23 to 26. The various convention activities will be handled by committees, as announced in a recent issue of DOMESTIC ENGINEERING.

Mr. Newman and his committeemen have completed all arrangements for taking care of fully as large an attendance as that which marked the last convention held in Oakland in 1922, which was one of the outstanding gatherings in the history of the California association, both in point of attendance and accomplishment.

APPROVE NEW ALABAMA PLUMBING CODE

Real estate dealers who have been somewhat critical of Alabama's new state plumbing examination and licensing law, approved its operation at a recent meeting in Birmingham. Members of the committee which investigated the code reported, they could find nothing to which property owners could take exception.

S. E. Scholz, of Birmingham, president of the Alabama Master Plumbers' Association, took a prominent part in securing the passage of the code.

MARYLAND STATE ASSOCIATION ELECTS OFFICERS

At the recent meeting of the Association of Master Plumbers of the State of Maryland, Inc., the following officers were elected for the ensuing year: William H. Williams, president; Gustav Wirth, first vice president; John Frederick, second vice president; Thomas J. Thaler, recording secretary; and Frank F. Breyer, treasurer.

AIR CONDITIONING SCHOOL DRAWS LARGE ATTENDANCE

Attendance at the three-day school in air conditioning held at Case School of Applied Science, Cleveland, March 17, 18 and 19, proved to be greatly beyond expectation. Professor G. L. Tuve, general chairman of the conference, was able to report on the last day of the meeting that more then three hundred had registered, coming from ten states and two provinces of Canada. The greater number of those in attendance were from outside the state of Ohio.

The program covered many of the applied forms of cooling and humidifying, with some of the background material on laboratory work, psychometric charts and the determining of the "comfort zone," the attainment of ideal air for human beings and a general resumé of the elements of air conditioning in the home.

Two viewpoints developed during the meeting. First, there was the idea that, because of the first cost of installations, it might be well to urge the public to become interested in furnishing conditioned air to one or two rooms—or to such rooms as might be chosen at a particular time during the day or night, by providing a system of dampers. The other viewpoint was that the American home owner should be sold on the idea of year-'round air conditioning from a central plant, supplying conditioned air to the entire house.

Keen interest was shown in the application of air conditioning to smaller business units, such as restaurants, barber shops, etc., where the apparatus might be considered as an element in the investment for profit. Various examples of such installations were cited by one of the speakers, with expressions from the owners of such establishments as to the results achieved in greater comfort and increased volume of business.

One of the important opinions, voiced a number of times during the three-day meeting, was this: The industry must be careful in its representations to the public on the subject of air conditioning. Equipment must be sold with an accurate definition of just what it will accomplish, in order that the public may not become "unsold" on the idea of air conditioning.

An example of the misunderstanding which might arise was given in one of the sessions. One of the papers read was on the subject of unit conditioners. In the following discussion period, one of those in attendance rose to ask the speaker why it was that such a unit did not do away with smoke in a room. The speaker very promptly pointed out that this was precisely the sort of thing which must not happen with reference to the public. The unit conditioner of which he spoke was put in, not as a complete conditioning and ventilating system, but merely as a unit which would furnish a certain degree of comfortable warmth and humidity to the room in which it was installed. Consequently it would have nothing to do with exhausting smoke in such a room, and must not be so thought of.

Twenty-four men, prominent in the application of air conditioning to industry and human comfort, were on the program to give the findings of their work in research, and in the use of conditioning equipment for various demands.

IS NOMINATED FOR STATE OFFICE

At a meeting of the Greater New York Association of Master Plumbers on March 21, the nomination of William Foley for first vice president of the New York State Association of Master Plumbers was approved. Mr. Foley is a past president of the Queens association. John F. Rogers, of Flushing, was appointed field representative for Queens Borough.

WISCONSIN LOCAL ELECTS NEW OFFICERS

At a recent meeting of the Wisconsin Valley Sanitary Club, held at Wausau, Wis., the name of the organization was changed to the Hydro-Thermal Club. It was felt that the new name was more appropriate for the organization. At this meeting, also, the following officers were elected: Lewis J. Eron, Wisconsin Rapids, president; Ben J. Hett, Wausau, vice president; Joseph J. Stadler, Marshfield, secretary-treasurer; and Joseph Hildensperger, Wausau, sergeant-at-arms.

READING SUBURBAN MASTERS INSTALL OFFICERS

The Reading (Pa.) Suburban Master Plumbers' Association held a successful banquet recently, at which time the newly elected officers were formally installed. The new officers are Charles Geiger, president; Ralp Keen, vice president; and Charles Reedy, treasurer. William Karbel was re-elected secretary.

Walter C. Williams of Wilkes-Barre, president of the Pennsylvania state association spoke at the meeting, as well as Amos P. Reimert, retiring local president. The banquet, which was attended by 140, was enlivened with DOMESTIC ENGINEERING balloons.

VERMONT MASTER PLUMBERS HOLD MEETING

A group of members of the Master Plumbers' Association of Vermont met recently at St. Johnsbury, Vt., to discuss business problems. Fred I. Somers, president of the Vermont association, was in charge of the meeting. Mr. Somers and J. Preston Perham of Boston, Mass., secretary of the National Association of Master Plumbers, were the principal speakers at the gathering. Credit conditions were among the topics discussed.

TRI-COUNTY ASSOCIATION IS ORGANIZED

Plumbing and heating contractors of cities and villages in Cattaraugus and Allegany Counties, New York, and McKean County, Pennsylvania, have organized the Tri-County Plumbing and Heating Contractors' Association. At an organization meeting recently John J. Shortell, of Olean, N. Y., was elected president. Other officers chosen are F. C. Paterson, of Bradford, Pa., vice president, and C. W. Stackhouse, of Olean, secretary-treasurer.

SPEAKS ON CREDITS AND COLLECTIONS

J. B. Murray, credit manager of the Crane Co. branch at Syracuse, N. Y., spoke on credits and collections at the March meeting of the Utica, N. Y., Master Plumbers Association. Ernest Morrotta, secretary, announced that Michael Knight would be the speaker at the April 25 meeting. It is planned to secure a speaker for each monthly meeting.

The biggest building in the world, the Chicago Merchandise Mart, selected this flush valve for use with Crane closets

Crane Beta *Vacuum Breaker water controlled flushing valve, C 13119*

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FLUSH VALVES

than your prospects do?

If you could find out what builders are looking for in a flush valve, wouldn't the information be of value in securing modernizing contracts?

Go right to the top and ask your question of the planners of the biggest building in the world, Chicago's Merchandise Mart. They might very well answer by showing you a flush valve that met every one of their requirements.

It is the Crane *Beta*, C 13119 with vacuum breaker. Here are the features that won their favor: Crane quality throughout; sturdy construction; renewable main valve seat; main valve and auxiliary valve easily accessible for replacement; long lasting cup leather; regulating screw; nickel silver by-pass in plunger protected by nickel silver strainer.

Surely you can't afford to be less careful about the flush valve you recommend for public buildings, institutions, hotels, than are the builders themselves; so see this valve at your Crane Branch.

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NEW PLUMBING INSPECTORS APPOINTED IN ST. LOUIS

Four new plumbing inspectors have been appointed in St. Louis, Mo., to replace some of those whose resignations were recently accepted. The newly appointed inspectors are Louis Fink, Fred J. Praechter and Ed. Gallagher, master plumbers, and August Stelzer, journeyman. Messrs. Fink and Praechter are both past presidents of the Missouri State Association of Master Plumbers.

PLUMBERS FIGHT LICENSE INCREASE IN SEATTLE, WASHINGTON

The city council license committee of Seattle, Wash., on recommendation of Health Commissioner E. T. Hanley, is considering a proposal to boost the annual plumbers' license fee from $50.00 to $100.00 per year, as a means of supplementing the city's revenues. Operators of small plumbing shops have been actively fighting the proposal for some time, contending that under present business conditions even the $50.00 yearly fee is too high, especially, when the city requires a surety bond in addition. In their recent conference with the council, the master plumbers complained unsuccessfully that they were being forced to violate the city ordinance or quit business. Some of the larger plumbing shop owners are reported to be favorable to the double license fee, but more shop owners are remaining firm in their contention that the burden should be lightened instead.

BUILDING EXPOSITION TO BE HELD IN BALTIMORE

With an honorary committee comprising nearly 100 of Baltimore's leading men and women, leaders in civic and social enterprises of the city, interested in making the eleventh annual Better Homes and Building Exposition the biggest and best ever sponsored by the Real Estate Board, the executive committee in charge of the show recently announced that a large portion of the booth space has already been taken. The exposition this year will be held during the week of April 2 at the Fifth Regiment Armory.

The exposition will be of such a character and scope as to present a cross-section of everything that goes into the construction and furnishing of a home.

The heating dealers will display the latest devices in coal, oil and gas heating equipment. There will be a special section for refrigeration and food products introducing the latest devices for the care and preservation of food products. The real estate and building concerns will exhibit models of different types of houses as well as samples of the materials that enter into the construction of the home.

MIDWEST COAL CONFERENCE TO BE HELD AT LAFAYETTE

The Fifth Midwest Bituminous Coal Conference is scheduled to be held at Purdue University, Lafayette, Indiana, April 14 and 15. Sponsors of the conference, in addition to Purdue University and the University of Illinois, are the Coal Trade Association of Indiana, the Illinois Coal Bureau, Fuels Division of the American Society of Mechanical Engineers, the Midwest Stoker Association, and the National Association of Power Engineers, Indiana branch.

TWO NEW YORK TOWNS ADOPT PLUMBING CODES

The village of Lynbrook, Long Island, N. Y., has formally adopted a new plumbing code, which became effective January 1. Walter J. Munson is chairman of the board of examining plumbers.

Licenses for journeyman plumbers and electricians are omitted from the proposed codes for the town of Hempstead, Long Island, N. Y. The new codes will be effective on March 1.

TRENTON MASTERS INSPECT RANGE BOILER PLANT

Members of the Master Plumbers Association of Trenton, N. J., visited the plant of the John Wood Mfg. Co., at Conshohocken, Pa., on March 22nd. Luncheon was served those who made the trip.

WISCONSIN UNIVERSITY OFFERS COURSE IN ESTIMATING

Methods of estimating costs of plumbing, heating, waterproofing pipe work, etc., will be taught in a new course offered by the University of Wisconsin, Extension Division, open to plumbing and heating engineers, contractors, estimators, etc.

The course is conducted by H. E. Pulver of the department of civil and structural engineering. Students will be taught how to prepare estimates from charts given in the text and supplementary material.

SAN FRANCISCO TRADE GROUP PLAYS GOLF

The Plumbing and Heating Club of San Francisco held its tournament at the picturesque California golf club recently. Among the score cards turned in were:

	G.	H.	N.		G.	H.	N.
Hoopes	121	27	94	Wilson	100	17	83
Mosher	102	22	80	McLeod	96	18	78
Lawson	95	19	76	Allmon	98	17	81
Turner, D.	103	23	80	Turner, W.	94	14	80
Doerr	109	25	84	Sheperd (Guest)	98	..	98
Seitz	95	18	77	Higgins	102	22	80
Fuite (Guest)	111	..	111	Rainwater	103	16	87
O'Hair	91	15	76	Chittenden	125	35	90
Elliott	97	10	87	Clark	96	17	79

Left to right: Morris Greenberg, J. J. McLeod, Frank B. Mosher, Herman Nelson, B. F. Blair, D. L. O'Hair, F. F. Elliott, Ross M. Clark, N. W. Farlow, J. V. Greer, W. A. Taylor, M. V. Woodson, Martin Doerr, Charles Higgins, Robert Allmon, W. A. Rowe, E. C. Saul, W. H. Rainwater, J. W. Forsythe and Thomas Mixter. Photos taken at golf tournament of the Plumbing and Heating Club of San Francisco, Calif., held recently at the Union League Club course

DEATH OF H. W. HAMMERSLA

H. W. Hammersla, city plumbing inspector of Harrisburg, Pa., died at his home in West Fairview, near that city, on Wednesday evening, March 16, of heart disease which had confined him to his home for three weeks. Mr. Hammersla was born in New Cumberland, Pa., 42 years ago and learned the plumbing trade in his youth in Harrisburg. He served for two years as secretary and treasurer of the Pennsylvania State Association of Master Plumbers and was appointed city plumbing inspector in Harrisburg in 1918, a position he held until his death. He was a member of the American Society of Sanitary Engineering and was to have read a paper before the recent conference on cross connections, which was held in Washington, D. C., but illness prevented him from attending the meeting. His widow, his father, five brothers, and three sisters survive him.

DEATH OF FRED E. WHITE

Fred E. White, a member of the firm of White Brothers, plumbing and hardware firm of Redwood, N. Y., died recently at his home in that village after an illness of six weeks. Mr. White, who was in his 56th year, was a native of Redwood. He entered the plumbing business with his father in 1897, when the firm of E. J. White & Son was formed. In 1908, Mr. White, Sr., retired from the firm, which became known as White Bros., when another brother of the deceased, Floyd White, entered the business.

DEATH OF LEWIS BLACK

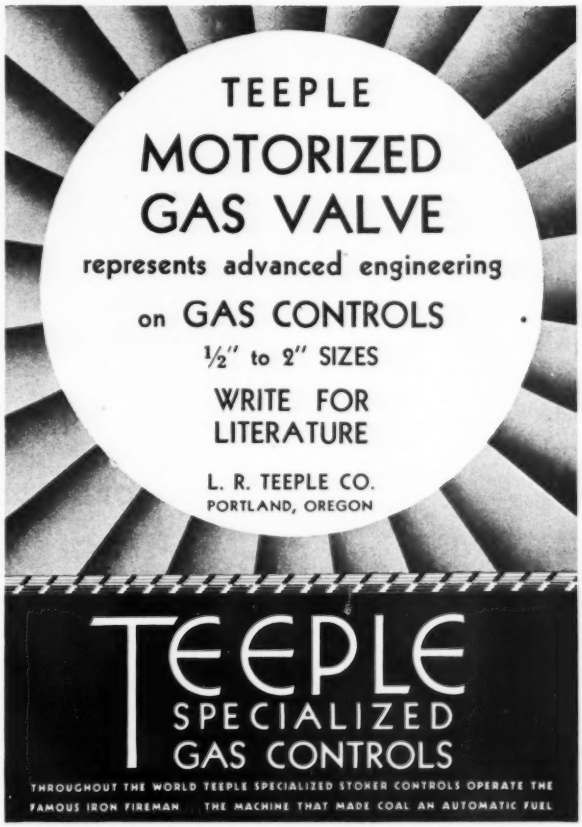
Lewis Black, prominent plumbing contractor, of Brooklyn, N. Y., died on March 5. Mr. Black was well known throughout the trade in the East and had participated in some of the largest building installations in the metropolitan district. The New Yorker hotel and the Brooklyn Technical high school, one of the largest high schools in the United States, were among the jobs completed by him. Mr. Black's death followed that of his son by four days.

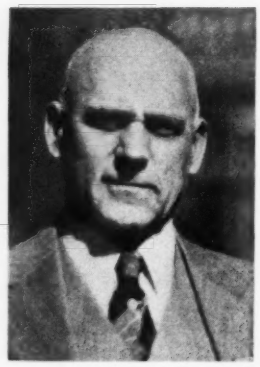
DEATH OF JEREMIAH CURRAN

Jeremiah L. Curran, for many years associated with his brother, James Curran, in the operation of the Curran Brothers' Plumbing Shop, Syracuse, N. Y., died recently at a hospital in that city. He was in his 66th year at the time of his death. Mr. Curran was a life resident of Syracuse.

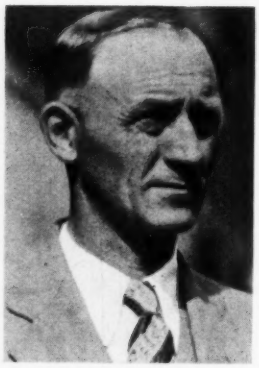
DEATH OF GEORGE H. KIRK

George H. Kirk, for many years a well-known member of the Chicago Master Steamfitters Association and a leader in its activities, died on March 14. He was in his 73rd year. Mr. Kirk's death occurred on board the steamship Santa Cecelia shortly before it entered the Panama Canal. He was on a vacation and was on his way from San Francisco to New Orleans. Mr. Kirk had been in the steamfitting business in Chicago since 1890, his establishment being located on the south side of the city. He is survived by his widow and a son, William A. Kirk.





Earl Clevenger, state president



Victor C. Knauth, vice president

Indiana Masters Recognize Need for Better Selling Methods at State Convention

"TAKE the mystery out of the plumbing business," was the battle-cry of the 36th annual convention of the Master Plumbers Association of Indiana held in Muncie March 14, 15 and 16.

As a general slogan this phrase was given repeated emphasis throughout the meeting. The opinion was widely expressed that the fight in Indiana demands the removal of the alley plumbing shop to its proper place in the retail district. It was felt that intelligent merchandising, with well-illuminated stores and attractive show windows, must supplant the hazy, obscure methods of selling practiced in the past. The plumber must adapt himself to modern situations and take the element of mystery out of his business, it was agreed.

Earl Clevenger, of Muncie, was re-elected for his third consecutive term as president of the state organization. Other officers for the coming year are Victor Knauth, Vincennes, vice president, and Max Baker, Muncie, secretary-treasurer.

Members of the new board of directors named by Mr. Clevenger are Arthur Lahr, Lafayette; R. M. Cotton, Indianapolis; S. C. Durbin, New Albany; John Niewoehner, Richmond; Louis Gollmer, Fort Wayne, and Charles Oberlin of South Bend. O. E. Hoff, of Brazil, was re-appointed sergeant-at-arms.

One of the outstanding addresses of the three-day convention was that given on the final day by Rupert J. Weber, of Chicago, a member of the board of directors of the National Association of Master Plumbers. Mr. Weber contended that the plumbing industry takes ex-

Perhaps you need one of these

OFTEN a valve problem arises that requires a special design for its correct solution. The valves shown illustrate just a few of the many kinds of valves which Jenkins engineers have developed for a diversity of services.

Among the valves pictured are:

Fig. 750—Bronze Regrinding Union Bonnet Globe Valve. For 200 lbs. steam working pressure.

Fig. 743—New Standard Bronze Globe Needle Valve, with bronze spindle. For close regulation of air, gasoline, and other fluids.

Fig. 124—Standard Bronze Y or Blow-Off Valve. Opening in line with pipe. Renewable disc and seat ring.

Fig. 710—Air gun. Renewable Disc specially compounded for compressed air service. Standard, flat, rounded or extension tip.

Jenkins BRONZE IRON STEEL VALVES Since 1864

Fig. 370—Standard Bronze Gate Valve. Solid wedge.

Fig. 890—Jenkins Iron Body Bronze Mounted Globe Valve, Screwed. Regrinding, union bonnet.

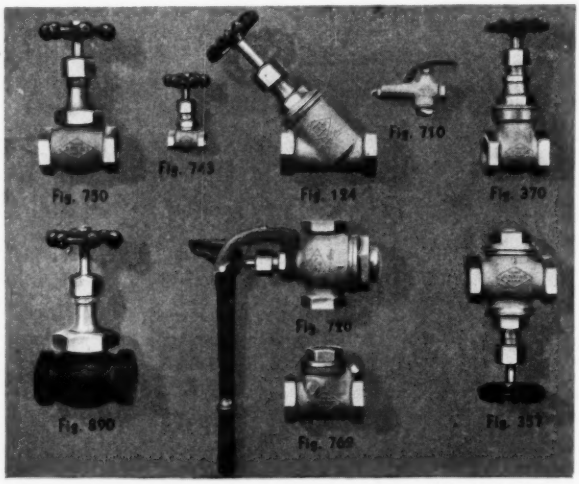


Fig. 720—Bronze Rapid Action Valve for hot or cold water and other fluids. Quick flow, on and off.

Fig. 762—Jenkins Bronze Regrinding Swing Check Valve, Screwed. Renewable bronze clapper.

Fig. 357—Bronze Selclo Valve. For severe service where valve is operated hurriedly or carelessly.

Jenkins Valves in bronze, iron and steel for practically every valve need are obtainable at your supply house. JENKINS BROS., 80 White St., New York, Bridgeport, Boston, Chicago, Houston, Philadelphia.

JENKINS VALVES ARE ALWAYS MARKED WITH THE "DIAMOND"

ception to many statements made in a booklet issued by the Department of Commerce and that the activity of the department in telling the home-owner how to do his own plumbing repairs has had the effect of aggravating the unemployment situation in the building trades.

The speaker endorsed the statistical services of the Department of Commerce, however, saying that such services are of extreme value to the plumbing industry.

He further expressed approval of several bills now pending in Congress, especially the Capper-Kelly bill which is intended to protect manufacturers of standard trade-marked products against price-slashing. He endorsed the bill now before Congress which will give the contracts of federal building jobs to home-town architects, another which will make it necessary for general contractors to list sub-contractors in their bids for jobs, and a fourth bill calling for separate contracts on all governmental work.

Other outstanding addresses of the convention were those of W. J. Spillane, sales-manager of James B. Clow & Sons, Chicago, and president of the Central Supply Association; Norman J. Radder, of the Plumbing and Heating Industries Bureau, Chicago; R. G. Bookhout, of New York, editor of the Plumbing and Heating Contractors Trade Journal; C. V. Sorenson, merchandise sales-manager of the Public Service Co. of Indiana; and Robert Fox, representative of the United Association of Journeyman Plumbers and Steamfitters.

Max Baker, re-elected Indiana secretary - treasurer

Mr. Spillane explained the "Chicago plan" for marking the price of plumbing fixtures in plain figures. This plan, Mr. Spillane said, is designed to take the mystery out of business, insofar as price is concerned.

"We haven't educated our buying public to the fact that the cheaper the fixture or commodity, the cheaper the article will be in quality," were the words of Mr. Spillane. "People don't want to buy an inferior quality for any price, but they do want the best for their money. Let the public know what you have and how much it will cost them. Be merchants and salesmen as well as mechanics."

Robert Fox, speaking on live-wire salesmanship, stressed the importance of campaigning for repair work rather than waiting for the customer to phone.

"We should all be skilled mechanics—and almost every plumber is such—but we lack another essential; we are not good salesmen and business men."

Speaking on "The Bathtub's Family Tree," Mr. Radder devoted a large portion of his talk to a history of sanitary bathing. The idea of a separate room in the house set aside for bathing purposes, he said, is at least 5,000 years old as has been recently proved in research work carried on by the Oriental Institute of the University of Chicago.

R. G. Bookhout addressed the group on the need among plumbers of a sound merchandising system.

It's Self-Closing!

The KLIXON Temperature Relief Valve . . . Costs Little— Adds Much

INSIST on having a KLIXON temperature relief valve on every automatic heater you sell. It's self-closing. You protect yourself from service calls. You protect your customer from trouble and expense. The KLIXON drains off overheated water only, then closes. It has positive snap action, costs little. Write for names of heater manufacturers who use them—they're the leaders.

Spencer Thermostat Co.
Attleboro, Mass.

Combined Pressure and temperature relief valves are available, with or without the release handle. Send for catalog and price sheet.

KLIXON

Fittings by Jarecki

■ Why should you specify Jarecki Fittings in times like these? ◀ Because for 80 years, through many depressions, the House of Jarecki has been giving extra value. ◀ Every Fitting is carefully inspected many times in the process of manufacture and again before shipment. They are unusually well made, unusually free from defects, unusually clean-cut. ◀ Be sure to get this extra value—specify "Fittings by Jarecki."

JARECKI MANUFACTURING COMPANY
ERIE, PA., U. S. A.

THE C-D-S WATERPROOF GASKETS

READY TO USE — NO HEAT REQUIRED

C-D-S
WATERPROOF FELT
CLOSET BOWL GASKET

THOUSANDS of C-D-S Waterproof Felt Closet Gaskets are going into jobs all over the country. This gasket, employing the famous Peter E. Snow process in its manufacture is the one gasket that is 100% leak proof and leaves no stain upon the floor.

It saves time over the older, less satisfactory methods of gasketing. Individually packed in cartons, C-D-S Gaskets are available now at your jobber's. Use them for all setting and re-setting jobs.

C-D-S PRODUCTS CORPORATION
Muncie : : : Indiana

LEAVES NO STAIN ON FLOOR

THE C-D-S WATERPROOF GASKETS

MAINE PLUMBERS ASK SEPARATION OF CONTRACTS ON GOVERNMENT WORK

John T. Kerrigan, re-elected president of Maine association

MEMBERS of the Maine State Association of Master Plumbers, meeting at Portland on March 15 and 16 for their 39th annual convention, adopted a resolution requesting that contracts for plumbing and heating work be separated from the general contract on government projects. The incoming president was instructed to appoint a committee to confer with wholesalers in regard to credit matters, and also as concerns the sale to contractors of materials that are contrary to the Maine state plumbing law.

It was felt that some action should be taken to build up the association's membership, and, as a result, numerous district meetings are planned for the coming year. The matter of dealing with changes in legislation was left to the incoming board of directors.

John T. Kerrigan of Lewiston was re-elected to head the association as president for another year. E. N. Cunningham of Portland was re-elected vice president, and J. E. Donovan of Winthrop was again elected secretary. F. A. Taylor of Freeport was named treasurer for another term.

The board of directors appointed by President Kerrigan for the coming year is as follows: F. C. Park, Orono; J. E. Donovan, Winthrop; George T. Noyes, Presque Isle; Wilbur F. Blake, Portland; Carl Seamon, Auburn; Herbert J. Parent, Lewiston; N. M. Knudsen, Portland; Iver Iverson, Portland; John J. Hennesery, Augusta; F. A. Taylor, Freeport; C. H. Webber, Dexter; L. M. Longley, Norway; E. N. Cunningham, Portland; John T. Kerrigan, Lewiston; L. P. Carter, Bar Harbor.

The delegates to the National convention at New York City next June will be President Kerrigan, C. H. Webber of Dexter and C. Madsen of Woodsford. Iver Iverson of Portland and Lester Carter of Bar Harbor are the alternates.

The following committee was appointed to arrange for the Plumbing Conference at the University of Orono, to be held in June, 1933: George T. Noyes of Presque Isle, T. C. Park of Orono, and E. N. Cunningham of Portland.

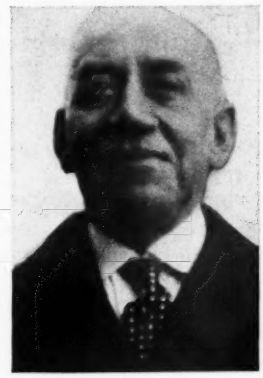
President Kerrigan opened the meeting with the appointment of Wilbur F. Blake as sergeant-at-arms.

In his annual report, President Kerrigan thanked the

members of the association for the honor bestowed on him as president, and also expressed his appreciation to the various committees for their assistance during the year. He told of the several meetings during the year with wholesalers, at which business problems were discussed. Mr. Kerrigan pointed out that considerable work had been done by the legislative committee during the year in reference to the proposed state plumbing code.

J. Preston Perham, of West Roxbury, Mass., secretary, National Association of Master Plumbers, extended the greetings of the National association and also the good wishes of National President P. W. Donoghue, of Boston.

Mr. Perham explained at length the survey made in Cincinnati, Ohio, pertaining to direct-to-you sales. This report appeared in a recent issue of DOMESTIC ENGINEERING. He remarked that the direct-to-you houses obtain their business through local newspaper advertising, built entirely on a price basis, and added that the established master plumber must also advertise his products on the same basis to meet this competition. Mr. Perham requested that local associations gather information on the percentage of business done by their members in comparison with the business done by non-members. He explained the work the National association is doing in a legislative way to obtain the separation of plumbing and heating contracts from the general contract on government work.



J. E. Donovan, re-elected secretary of Maine association

He also pointed out that the joint co-operative plan with the American Gas Association in regard to the merchandising of gas appliances was working out very satisfactorily. He said that 135 gas companies are using the plan, as well as 160 public utilities on electrical service.

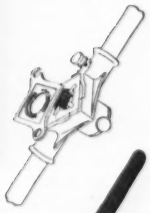
Harry G. Starr, of Wm. H. Gallison Co., Boston, spoke on the distribution of plumbing and heating materials through direct-to-you channels. Mr. Starr told how the established master plumbers can co-operate with the wholesalers in meeting this competition. He pointed out that while the direct-to-you houses may be low on fixture prices, their quotations on roughing-in materials are high.

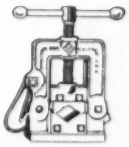
George T. Noyes, a past president of the association, explained the law in Maine pertaining to liens. He said it is permissible by Maine law to place liens on the property within 90 days after the job is finished, and that after completion of the job 60 days are allowed for placing liens against general contractors.

Dr. E. W. Campbell of the Maine State Board of Health requested that all master plumbers in the state consider it their duty to report any plumbing installation that is being done without a permit, or in violation of the state code.

Carroll B. Skillings, of the Allied Industries Association, described the activities and objectives of his organization.

ARMSTRONG BROS.





The Most Complete Line of Pipe Tools—*Each an Improved Tool*

ARMSTRONG BROS. Pipe Tools comprise the most complete line of hand pipe tools made and each is an improved tool, a cleaner cut, better balanced tool that makes work easier, faster, that will give longer, more satisfactory service. You will find in each ARMSTRONG BROS. Pipe Tool many unusual features (from 5 to 14 per tool), certified metals, alloy steels, drop forgings and hardened parts—extra strength and longer wear. You will also find it a good rule to always see the ARMSTRONG BROS. pipe tool (the one with the Arm-and-Hammer Trade Mark) before you buy.

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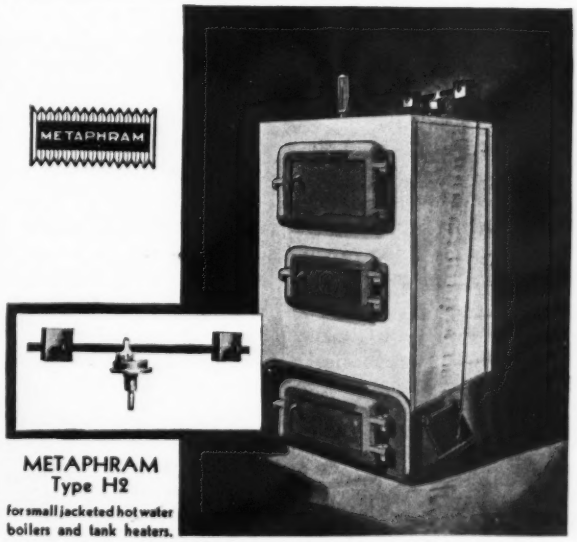
"The Tool Holder People"
323 N. Francisco Ave. CHICAGO, U. S. A.



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for small jacketed hot water boilers and tank heaters.

METAPHRAM Gradual Control
covers the entire range of domestic hot water and low pressure boilers and tank heaters, either gas, oil or coal fired.

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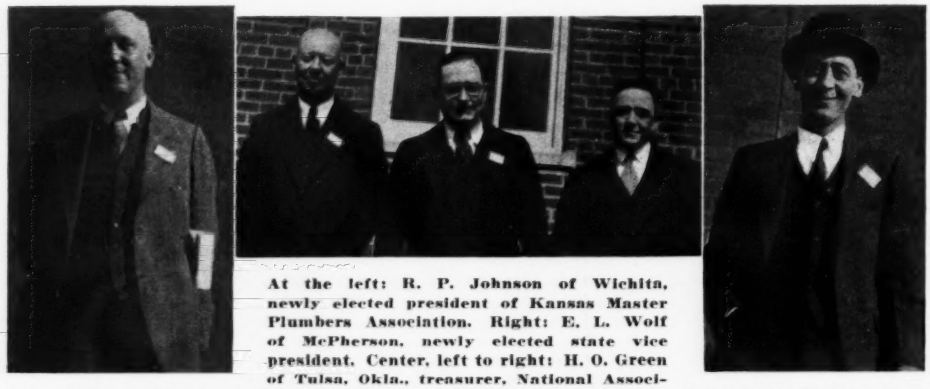

At the left: R. P. Johnson of Wichita, newly elected president of Kansas Master Plumbers Association. Right: E. L. Wolf of McPherson, newly elected state vice president. Center, left to right: H. O. Green of Tulsa, Okla., treasurer, National Association of Master Plumbers; Harry L. Stevens of Hutchinson, a director of the N. A. M. P. and re-elected treasurer of the Kansas association; and J. E. Lansdowne of Wichita, retiring state president

KANSAS FACES REPEAL OF STATE ANTI-UTILITY MERCHANDISING LAW

FACED with possible repeal of the state Anti-Utility Merchandising law, the Kansas Master Plumbers Association will exert every effort to see that the law is enforced, until a decision as to its legality is handed down by the State Supreme Court. The law, which prohibits utility companies in the state from merchandising, has been in effect for only about twelve months. The whole matter was thoroughly reviewed at the Kansas association's annual convention in McPherson on March 14 and 15, and a resolution was adopted criticizing the action of the Kansas Press Association in working for repeal of the law. An expression of opinion on the law will be asked of the various newspapers in the state.

In another resolution, manufacturers were urged to adopt re-sale prices for their products and to use these prices in their national and local advertising campaigns.

Direct-to-consumer sales by wholesalers were condemned by H. O. Green of Tulsa, Okla., and Harry L. Stevens of Hutchinson, Kans., treasurer and director, respectively, of the National Association of Master Plumbers. A feature of the meeting was the educational hour sponsored by the University of Kansas, under the supervision of Professor A. H. Sluss of the school of engineering.

Among those who spoke briefly at the opening session were J. E. Lansdowne of Wichita, state president; Mayor D. R. Maltby of McPherson; Mrs. E. D. Hornbrook of Kansas City, Mo., past president of the National auxiliary; Mrs. H. O. Green of Tulsa, Okla., a director of the National auxiliary; Mr. Stevens, Mr. Green and the various Kansas state officers.

R. P. Johnson of Wichita was elected president of the association, succeeding Mr. Lansdowne, and E. L. Wolf of McPherson was elected vice president. Treasurer Harry L. Stevens of Hutchinson and Secretary Carl McGregor of Winfield were both re-elected. A new office, chairman of the advisory board, was created, and Oscar C. Robertson of Wichita was appointed to this position by President Johnson.

The convention was called to order by President Lansdowne, who appointed the following committees:

Educational, Harry L. Stevens, Hutchinson; membership, Finlay Hull of Pittsburg, C. A. Smith of Wichita and C. E. Bennett of Pittsburg; conference, W. R. Threlfall of Wichita, William Ball of Kansas City and H. A. Fairchild of Hiawatha; editorial, Mrs. J. M. Simmons of Wichita and Mrs. Carl McGregor of Winfield; auditing, Ellis Billings of Arkansas City, M. Humberg of La Crosse and G. H. Hamilton of Topeka; credentials, Ralph Anderson of Pratt and J. M. Simmons of

Group picture of delegates and guests attending the annual convention of the Kansas Master Plumbers Association, held at McPherson, Kans., March 14 and 15

Wichita; memorial, George W. Sutherin of Topeka, C. B. Hamilton of Winfield and C. A. Powell of Manhattan; resolutions, R. P. Johnson of Wichita, K. W. Talbott of Pratt and J. A. Skelley of Salina. Sergeants-at-arms, H. P. Dunaway of Wichita, J. S. Merriman of Oakley and R. E. Kirkpatrick of Newton.

In his report, National Treasurer Green stated that many wholesalers are selling direct to the public, claiming they must do this to compete with direct-to-you houses. He quoted National President P. W. Donoghue of Boston as saying that "proper installation is the main thing to be considered in plumbing and heating," and urged the local wholesalers to bear this in mind.

National Director Stevens covered National association affairs in his talk. He urged his hearers to lend their support to the Plumbing and Heating Industries Bureau, and asked them to point out to wholesalers and manufacturers what the Bureau is doing. Mr. Stevens also touched on proposed federal legislation and the Cincinnati survey on direct-to-you competition.

J. R. "Shorty" Lewis of DOMESTIC ENGINEERING spoke on the "Spend for the Home in 1932" campaign, which was originated in the offices of this publication.

In his report as president, J. E. Lansdowne said that in his opinion the plumbing and heating contractor was due to pass out of the picture unless he entered actively into merchandising.

Secretary Carl McGregor described the accomplishments of James Gray, field secretary, during the recent state merchandising campaign. He added that splendid co-operation was had from a number of wholesalers.

Professor E. B. Dade of the University of Kansas delivered an interesting address on "Present Business Conditions." Among other things, he remarked that too little attention has been given to the housing needs of people in moderate circumstances.

"Some Problems in Selling" was the topic of an address by Harold Ingham, director of the extension division of the University of Kansas. He emphasized the importance of advertising, good-will and neat and attractive places of business.

M. V. Lyle of Frigidaire Corp. spoke on "Air Conditioning." He predicted a bright future for the air conditioning industry, particularly in the domestic field.

Professor J. O. Jones of the school of engineering and architecture, University of Kansas, spoke on "Some Aspects of Hydraulics in Water Service Piping." He cited several rules for determining the adequacy of specifications. "Cross Connections and Back Siphonage" was the subject of an address by R. H. Zinkel, manager of the plumbing engineering department of Crane Co., Chicago, Ill.

Memorial services were held for E. D. Hornbrook of Kansas City, Mo., and Thomas F. Nolan of Albany, N. Y., past president of the National Association of Master Plumbers, both of whom died during the past year.

A splendid program of entertainment was provided by the McPherson association, including a Dutch lunch and dance at the Elks club and a luncheon on Tuesday noon. The luncheon on Tuesday was attended by many of the leading citizens of the city, the principal speaker being E. B. Hauser, manager of the Kansas City, Mo., branch of Chandler Pump & Supply Co.

Since before Cheops built the Pyramids

"Many people in every line of business now see very plainly that their future success will be based upon a present ability to quickly return to the fundamentals of their occupation. The easy 'pickins' of prosperous years have led us far afield," says Old Bill Wise.

"But it is a fine testimonial to the inherent soundness of plumbing and heating contractors that so many of them have never departed far from their fundamentals. Such contractors have recognized that incidently they are buyers, merchants, financiers, book-keepers, mechanics and many other things combined into one. But, fortunately, they have held firm to the idea that essentially they are in the business of contracting. This function is one which requires the exercise of a talent very much more rare and very much more important to the contracting business.

"These successful contractors know that their progress depends upon their ability to plan their work, to organize and to coordinate men, materials and time. It involves a very unusual and seldom recognized talent which enables them to get men to work together harmoniously, intelligently and effectively with one another, with the materials at hand, within the necessary time limits.

"This is a job which requires a very strange and a very real ability. It has been manifested upon every successful job of contracting which ever has been performed; since before Cheops built the Pyramids. The larger the job, the greater is the need for this interesting ability to organize, coordinate and cooperate," says Old Bill Wise.

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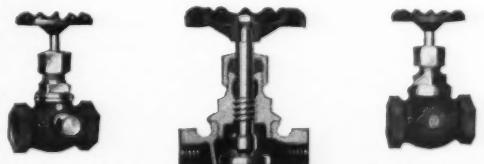
New York City · Philadelphia, Pa. · Chicago, Ill.
WM. P. HORN CO., Los Angeles, San Francisco, Seattle

COMPRESSION STOP & WASTE VALVE



Alert plumbing and heating contractors are taking to these New Compression STOP & WASTE Valves like "ducks take to water"; and with good reasons. These "small things to look for but big things to find" are proving very interesting; (1) swiveling disc (2) metal-to-metal tight joint between stem and center-piece (3) "centered" waste outlet (4) rolled rod instead of cast brass stem (5) larger handwheels attached with (6) nut instead of screw. Ask your Ohio Brass Wholesaleman about these special details; and don't forget to inquire about the Improved No. 3 Line Composition Disc, its the best ever.

O-B No. 3 Line

The **"PROFIT IN THE MAKE UP"** *Line*

CALIFORNIA MASTERS REPORT BUSINESS GAIN AT FEDERATION MEETING

Heads of California's plumbing industry were particularly active recently, with the meeting in Los Angeles of the executive board of the State Association of Master Plumbers of California and the meeting of the Southern Federation of Merchant Plumbers.

In attendance at the state executive board meeting were President J. V. Young, San Francisco; Vice President J. D. Speer, Santa Barbara; Treasurer J. B. Hawley, Sacramento; Board Members R. W. Timmons, Richmond; F. C. Schilling, Jr., Los Angeles; and R. I. Walters, Bakersfield; Past State President Claude Hickman, San Pedro; National Director Charles M. Swinnerton, Los Angeles; Executive Secretary John M. LaDieu, Los Angeles; and Alexander Coleman, San Francisco, president of the Northern Federation.

The board's most important concern lay with the details of the forthcoming annual state convention.

Considerable interest was also shown by the group in the bills affecting the industry which are now before Congress—H. R. 4680 ("to require contractors on public buildings to name sub-contractors, material men and supply men and for other purposes" and designed to prevent the pernicious practice of bid peddling on government contracts on the part of the general contractor), S. 97, or the Capper-Kelly bill ("to protect trade mark owners, distributors and the public against injurious and economic practices in the distribution of articles of standard quality under a distinguishing trade mark, brand, or name") and H. R. 6187 ("to direct the Secretary of the Treasury to contract for architectural and engineering services in the designing and planning of public buildings"). A resolution was passed endorsing all three bills and in connection with H. R. 6187 it was decided that the industry should endeavor to co-ordinate its efforts with the State Board of Architects to effect an early passage of the bill.

A report presented by Executive Secretary John M. LaDieu indicated that, regardless of the adverse trend of business conditions in the year 1931, the organization had carried out its functions for the benefit of the industry and had held up in membership remarkably well. He stated that 101 new members had been enrolled in the twelve months period.

In exchanging views of business conditions, the Northern board members evidenced an optimistic outlook for a pick-up of considerable magnitude for their part of the state in the near future. All had noted a slight increase in business done in recent months which they felt boded a general quickening of activity in all lines of endeavor.

One hundred twenty-five members, their wives and guests, attended the dinner and general meeting of the Southern Federation of Merchant Plumbers.

Following the dinner, visitors from the Northern Federation, including J. V. Young, J. B. Hawley, R. W. Timmons and Alexander Coleman, president of the northern body, were introduced and upon them was bestowed the "Order of the Bath."

H. R. Fielden, golf chairman, announced the winners of the tournament held that morning at Sunset Fields,

The KAINER
PRESSURE GOVERNOR
for Hot Water Heating Systems
—Reduces the cost of a hot water layout.
—Eliminates expansion tank and fittings (with its danger of freezing and overflowing).
—Simplifies installation—makes a better job.
—Saves your time and your customers' money.
—Increases your profits and builds good will.
Write us for full information.
KAINER & COMPANY
CHICAGO
761-771 MATHER STREET
Manufacturers

KELLY VALVES
No.2
Order from your jobber or write us direct.
The complete line of seven Kelly Valves will fill every air valve requirement for a gravity one-pipe atmospheric or vacuum type heating system.
All Kelly Valves are so constructed that they need no adjustment and they cannot be tampered with. They are guaranteed for five years.
Operate under all pressures up to 10 pounds. Made of the highest quality materials and by skilled workmen, they will do a complete job of satisfying customers and saving fuel.
KELLY BRASS WORKS
226-32 W. ONTARIO ST. CHICAGO

and distributed prizes of golf balls. Among the members, H. R. Fielden won with a low gross score of 86 strokes and Claude Hickman with a low net of 73. Guest prizes were awarded to Mr. Seem, of the Day and Night Water Heater Company, for a low gross of 86 and to Mr. Potter of the Southern Counties Gas Company, for a low net of 79. The blind bogey prize was won by Frank Stokes who had a net score of 79.

Guest speakers for the evening were C. E. Memory, certified public accountant, and Wiliam L. Ware, domestic trade commissioner of the Los Angeles Chamber of Commerce.

Mr. Memory took for his subject, "Have You the Right to Be in Business?" and dealt particularly with bankruptcy, its filing procedure and causes. He pointed out that bankruptcy is fast increasing in the United States and quoted figures showing that in 1921 there were 23,000 bankruptcy petitions filed, while in 1929 this number had grown to 57,000, in which was involved a debt total of $800,000,000. Causes of bankruptcy he listed in the following order: 1. Failure to keep books (responsible for 90%); 2. Negligence in applying bookkeeping facts to business; 3. Diversion of funds from business for personal use; 4. Giving too much credit; 5. Accepting too much credit from supply sources; and 6. Errors in judgment in establishing a business.

Mr. Ware spoke of, "The Future of Los Angeles and Southern California," and prefaced his remarks with the following merchandising thought:

"I wish this meeting had been held in my home where two water faucets leak and ordinary treatment does not stop the constant drip.

"I venture to say that at least 98,000 faucets are leaking in Los Angeles County this minute; 22,000 are worn out and should be replaced; the remaining 76,000 need washers, fuller balls or packing.

"It seems to me if I had an established business right now with sales at a low point, I would offer to repair the leaky faucets just to get into the homes and make a survey to see what they need in my line. Also, to get acquainted and to develop a personalized service. It surely is worth $1.00 to any plumbing business to have a friendly contact and know what is needed in each home in the neighborhood. In many cases the plumber is not called because he is not known and the home owner is afraid the cost would be excessive. This barrier to a lot of work and sale of supplies can be broken down by personalized service.

"Supposing a gentleman came to my house and handed me the card of Plumber Smith and said: 'Mr. Ware, our shop is making a survey to get acquainted with the homes in our trade territory. For your kindness in allowing me to come in for a moment to look over your plumbing, I will repair right now any leaky faucets you may have, it will only take a few minutes.'

"I would let that fellow in mighty quick and appreciate his service on those two faucets. No doubt he would sell me something, too, but I would feel that he was entitled to the business.

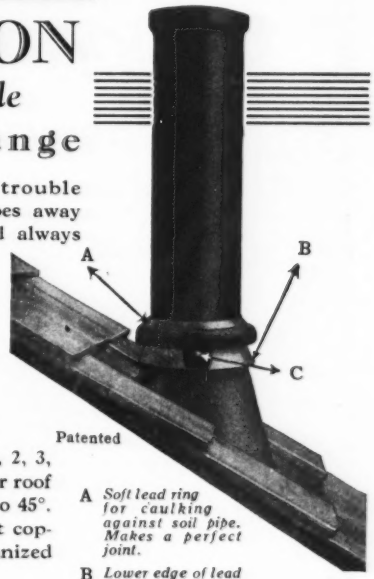
"When he left he would have a record of equipment needed or soon to be needed in my home, that Plumber Smith could supply.

"You men suffer because the industry—building—necessary to your business is in the dumps. You are going to have to dig up new business in homes already occupied."

REDLON
Adjustable
Roof Flange

A real time and trouble saver because it does away with hot lead and always makes a perfectly tight joint that you can depend on.

Fits both standard and extra heavy soil pipe; all you need do in ordering is give size, 2, 3, or 4 in., and whether roof is flat to 25° or 25° to 45°. Made of heavy sheet copper and also of galvanized iron.



Patented

A *Soft lead ring for caulking against soil pipe. Makes a perfect joint.*

B *Lower edge of lead caulking Ring that dresses back against flashing after adjustment is made*

C *Rivet that holds hub in place and will let it tip to fit the roof it is placed on.*

O. M. REDLON
Front and Ferry Sts.
BATH MAINE

TRENTON
BRASS·PRODUCTS

YOU will never lose any time in the installation of Trenton Sink and Tray Plugs. They install without difficulty and can be used on any standard sink or tray.

For soapstone, slate, earthenware or porcelain wash tray.

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The Trenton Brass & Machine Co.
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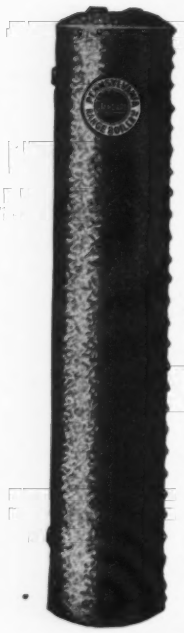
ROLLIN C WILSON, 7 E. 42nd St., New York, N. Y., 261 Franklin St., Boston, Mass.

PENNSYLVANIA RANGE BOILER



PERFORMANCE—*not* **PROMISE** *makes for* **POPULARITY** *and pays* **PROFITS** . . . . . .

Recently one of our Philadelphia Hand Made Boilers (original malleable head type) was taken out of stock and put through a destruction test by the Springfield, Mass. Building Dept. *The Boiler stood up under pressures far in excess of Massachusetts regulations.* Do you wonder Pennsylvania Range Boilers are preferred where conditions are most adverse to long life through corrosive action and water pressure?

Sold Thru Jobbers

Complete line of *All Welded* and *Riveted and Welded* Galvanized Boilers.

JOBBERS: Send for sample of any boiler for 30 day inspection.

Pennsylvania Range Boiler Co.
Established 1895
24th & Washington Ave., Philadelphia, Pa.

PHOENIX BRASS FITTINGS

ECONOMICAL

PHOENIX BRASS FITTINGS CORP.
Irvington, N. J.

NORTH DAKOTA MASTERS POSTPONE EFFORTS TO SECURE PLUMBING CODE

THE State Association of Master Plumbers of North Dakota held its twelfth annual convention at Fargo on March 15 and 16 and elected George Casper of Devils Lake as president for the ensuing year. Although the attendance was not as good as in past years, the meeting was one of the most interesting that the association has held. The convention endorsed Senate Bill H. R. No. 9975, calling for the separation of mechanical equipment from the general contract on government work, and also endorsed Bill H. R. 9921, relative to prequalification of bidders. A resolution was also adopted endorsing the activities of the Plumbing and Heating Industries Bureau and the suggestion was made that wholesalers also lend their support to the Bureau.

George Casper, president, North Dakota Master Plumbers Association

Other topics discussed at the meeting were state and local plumbing codes, credits, lien laws and the unemployment situation.

Officers elected, in addition to Mr. Casper, were M. M. Sornsin of Fargo, vice president; Peter Grady of Grand Forks, secretary-treasurer; and the following directors: Charles Wiley of Minot, A. W. Hoppert of Wahpeton and Frank Gallagher of Jamestown. It was voted to hold next year's convention at Devil's Lake.

Joseph Keller of Fargo, president of the association, presided at the meetings. The address of welcome was delivered by A. L. Lynner, president of the Fargo City Commission, and the response was made by Frank Gallagher of Jamestown, state vice president. President Keller appointed the following committees to handle the convention business.

Credentials, Frank Johnson and J. J. Monahan; resolutions, Robert Gibb and Charles Wiley; auditing, George Casper and W. S. Stevenson; publicity, A. E. Champlin and M. M. Sornsin; condolence, Frank Gallagher and Ole Hovick; nominating, A. W. Hoppert, A. F. Hulteng and James Stenson.

The falling off in construction activity has brought on unemployment, which, in turn, has forced many journeyman plumbers to go into business for themselves, declared President Keller in his annual report. "The result is that there are 26 in the plumbing and heating business in Fargo, or about 50 per cent more than in normal times." He added that many of the journeymen who went into business are conscientious

workmen who fully realize the importance of proper plumbing and its relationship to the health of the community in which they operate, but some do not. He considers it the duty of master plumbers to co-operate with local and state officials in seeing that proper ordinances are enacted and plumbing inspectors appointed to protect the community against improper workmanship and materials, particularly as a health protective measure.

George F. Reeke, Green Bay, Wis., a director of the National Association of Master Plumbers, discussed "How National Association Activity Is Helpful to the Three Branches of the Industry."

"Plumbing is one of the most essential things in the home," declared Mr. Reeke. "The best is none too good and, while the plumbing trade should be prepared to meet the competition of those who offer very cheap plumbing supplies, they should also be prepared to show the patron that installation of quality material pays."

Mr. Reeke emphasized the need for closer co-operation between master plumbers, wholesalers and manufacturers. He described some of the things that are being done in Wisconsin to improve conditions in the industry, particularly the group advertising plan in Green Bay.

Mr. Reeke also explained the study of direct-to-you competition that was made in Cincinnati, Ohio. This has already been published in DOMESTIC ENGINEERING.

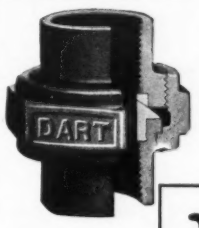
W. W. Hughes of Minneapolis, Minn., spoke on the value of the business paper to the plumbing and heating contractor and explained how the contents of the paper can best be made use of. Mr. Hughes also spoke of the work that is being done by the Plumbing and Heating Industries Bureau and urged that this organization be given the support of the entire industry.

Considerable discussion was devoted to the matter of a state plumbing code for North Dakota. When the proposed code was presented to the 1931 legislature it was changed so much on the floor during that session that it was decided to withdraw the measure. The code committee, appointed several years ago, and consisting of Rasmus Lunseth, Grand Forks, chairman; A. F. Hulteng, Grand Forks; and Joseph Keller, Fargo, was continued and was instructed to renew its efforts to secure the enactment of a plumbing code. Because of present financial conditions it was decided to let the matter rest until the 1935 session, although the committee was instructed to continue working on the proposition.

L. L. Twitchell, of Fargo, a member of the North Dakota house of representatives, addressed the association on "Lien Laws of North Dakota." Other features were a talk by E. F. Riley, president of the North Dakota State School of Science at Wahpeton, N. D., on "Trade Education," and a discussion by E. R. Hulteng, Grand Forks, of the state plumbing laws and codes.

Mr. Hulteng, who is a master plumber and also a designing engineer, called upon Mr. Reeke for an explanation of the manner in which the Wisconsin plumbing code functions.

On Wednesday morning the delegates and guests made an inspection tour of a packing plant. The annual banquet was presided over by A. E. Champlin. Entertainment added to the enjoyment of the affair.



"TWO BRONZE TO BRONZE SEATS ought to make a union stand up." That's what you say. And we say, "They Do!" Over a period of years, we have constantly received from you information testifying to the rugged durability, characteristic of Dart Unions. And now as ever, our answer—Two Bronze to Bronze Seats, accurately machined, perfectly ground.

Dart Unions

E. M. DART MANUFACTURING CO.
Providence, Rhode Island
Sales Agents: The Fairbanks Co., New York Branches
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Stop this!

Eliminate those unexpected "shots" of hot and cold water in shower baths. Stop the time wasted in trying to get water at the right temperature. Install Powers Mixers. Write for 20-page book.

THE POWERS REGULATOR CO.
2716 Greenview Ave., Chicago
Offices in 37 Cities

With The POWERS SHOWER MIXER

ARE YOU GOING TO "CASH IN" ON THIS SUMMER'S HEAT?

Last year—portable showers were in great demand—everyone wanted to "cool off" quickly.

Our new line of "*Milwaukee portables*" is now ready—at prices that *defy competition.* We suggest writing for Bulletin No. 32 mentioning your jobber's name.

MILWAUKEE FLUSH VALVE CO.
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RIDGID

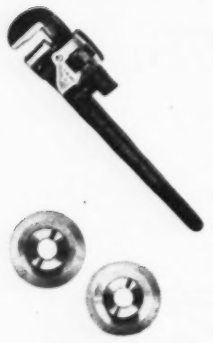
The Wrench with the Unbreakable Housing

Replaceable heel jaw . . . full floating hook jaw . . . an adjusting nut that turns easily in open housing . . . instant grip . . . no slipping . . . instant let-go . . . and now, *double* its old strength. See the RIDGID at your Jobbers.

THE RIDGE TOOL COMPANY, Elyria, Ohio

Check your Supply of TRIMO TOOLS

Your dealer is in readiness to replenish your working equipment with new, tested TRIMO Tools



The makers of TRIMO Tools have now completed a country-wide check-up of TRIMO dealers to assure you of prompt, satisfactory service on all TRIMO Tools and replacement parts.

Now is the time to put your tool equipment on an efficient, profitable basis. Work can be speeded up to show a better margin for you when you use modern all-steel TRIMO wrenches, TRIMO pipe cutters, and the sensational TRICROME wheels.

Check your supply and place an order with your dealer. He is extending you a real service by keeping in readiness to fill your needs.

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TRIMO TOOLS

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Known as the best for fifty years

TRIMONT MFG. COMPANY
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A Half Century of Plumbing Progress

(Continued from Page 37)

present time where the seal of traps can be protected against siphonic action or back pressure other than by natural atmospheric pressure. In the interior of piping of plumbing systems working under a gravity system, there are ever-changing air conditions. At some points of the piping, there is excessive air pressure and at other points of the piping there is not sufficient air pressure. It is, therefore, the duty of the air pipe or venting system to remove the excessive pressure where that occurs and to supply air where the pressure is diminished.

The writer is in favor, wherever possible, of taking soil and waste branches from the top of the house drain. And, this should be done at several points, if practical, to readily remove from the system the air that is contained in the house drain. This air is forced into the house drain from the vertical stacks, the water forces it down and the air retards the flow of the water in the main drain. There is a fight for the water to flow in one direction and the air to flow in another direction. This should not be and can be rectified by the removal of that air.

If the branches for soil and waste were taken from the top of vertical drains, that are not conveying water at the time this excessive air pressure occurs, they would act as a relief and take the air pressure away from the main drain. This would also assist the fresh air inlet. In many instances, the fresh air inlet acts as an outlet instead of an inlet. This should not be either. Where offsets occur in tall buildings, the horizontal part of the offset should be vented so as to remove the air from the horizontal offsets. It is the writer's opinion that the continuous waste and vent system is the proper system and it is the best known to plumbing science at the present time.

It is necessary to safeguard against siphonic action and back pressure the fixtures in the top stories of buildings, especially tall buildings or buildings where there are unusual currents of air pressure. The seal of the trap should be protected by unusual means and it is very often necessary to make special provisions against wind pressure on the fixtures in the top stories of buildings. This applies equally to all types of buildings.

SANITARY PLUMBING ONE OF THE ACHIEVEMENTS OF THE LAST FIFTY YEARS

To the writer's way of thinking it is one of the achievements of the past fifty years, the conveying of water to the top stories of tall buildings where when you press a button you can get all of either hot or cold water you desire for any purpose, the taking away of waste water so that the inhabitants of those top stories of buildings can live with as much safety against sewer air or contamination from its effects, as if they lived in a one story building with a good plumbing system. Surely, the plumbers of the United States have accomplished this.

In plumbing systems, the distribution of cold water and the removing of air from the cold water systems are problems that should receive more attention. Also,

the subject of pipe sizes should be gone into very thoroughly. In hot water systems used for plumbing systems, care should be taken to remove air from the systems and there is no reason why many pumps that are now used on the water circulating systems could not be dispensed with if pipes were graded and pitched properly.

I believe that plumbing is a health problem and I believe that the unusually low death rate in the City of New York is due in a very large measure to good sanitary conditions which exist in the City of New York. I believe that the engineers and plumbers who have co-operated in this work should get a great deal of the credit for the low death rate in the City of New York for it is due to their untiring efforts in this direction. The millions of people now living in the City of New York owe a deep debt of gratitude to the plumbers of the city who have acted as watchdogs of the plumbing codes, and rules and regulations of the City of New York.

All installations of plumbing, large work and small work, should be inspected by regularly qualified plumbing engineers who have a knowledge of plumbing. And, the reason for this is because plumbing is a health measure and great injury can be done to the health of the American public if plumbing work is not carefully installed under the supervision of competent engineers or competent plumbing inspectors. Engineers and inspectors should be qualified by special training in sanitation and should be well versed in all phases of the business.

BRIDGEPORT ASSOCIATION ELECTS OFFICERS

The Bridgeport Master Plumbers' Association has elected Joseph F. Mongrain to serve as president during the ensuing year. The other officers are Albert E. Russell, vice president; Lester E. Finch, secretary; and Adolph G. Pitz, treasurer.

Convention Dates

April 4, 1932—NEW YORK H. & P. C.—The annual convention of the Heating and Piping Contractors New York State Association, to be held in New York City, with headquarters at the Hotel Pennsylvania.

April 5, 1932—MASSACHUSETTS—The annual convention of the Massachusetts State Association of Master Plumbers, to be held in Boston, with headquarters at the Hotel Statler.

April 5 and 6, 1932—NEW YORK—The annual convention of the New York State Association of Master Plumbers, to be held in New York City, with headquarters at the Hotel Pennsylvania.

April 5, 6 and 7, 1932—MICHIGAN—The annual convention of the Michigan State Association of Plumbing and Heating Dealers, to be held at Mt. Clemens, with headquarters at the Medea Hotel.

April 6 and 7, 1932—C. S. A.—The 108th regular meeting of the Central Supply Association, to be held at the Palmer House, Chicago. Executive Committee will meet April 5.

April 11 and 12, 1932—ARKANSAS—The annual convention of the Arkansas State Association of Master Plumbers, to be held at Little Rock, with headquarters at the Lafayette Hotel.

April 11-16, 1932—A. O. B. A.—The ninth annual convention and show of the American Oil Burner Association, to be held in Mechanics' building, Boston, Mass. Convention headquarters at the Statler hotel.

April 18 and 19, 1932—MISSOURI—The annual convention

Fretz-Moon Pipe is threaded to fit true and fast. Uniform low-carbon steel that cuts easily, precision threading machines, sharp modern dies, and, above all, the watchful care that follows every step in the Fretz-Moon plant, produce sharp, clean, accurate, deep-cut threads that are a joy to the workman and time and money-saving advantage to everyone concerned with the installation. Try Fretz-Moon Pipe in your next job, and note the ease and speed of fitting.

FRETZ-MOON TUBE COMPANY, INC. • BUTLER, PENNA.

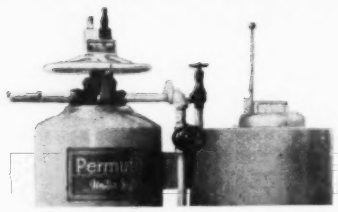
FRETZ-MOON
PIPE
BLACK AND GALVANIZED

RIGHT now it is important to the success of your business that you do a lot of checking-up in your community. Call on your prospects. Many of them will have a sad story to tell you about the failure of their heating system to heat. It may be faulty radiator valves, and if this is the case, you can eliminate this complaint once and for all. Show them the Keeney. Suggest that you put one on for a trial. Watch the results.

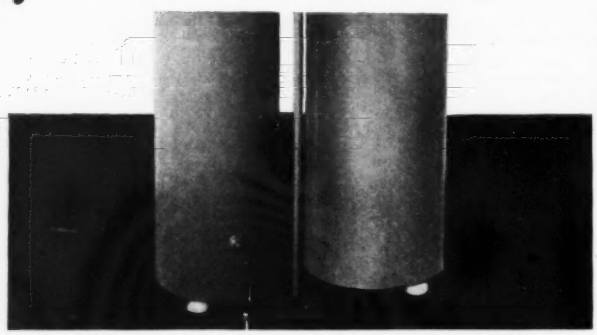
And suggest that they use Keeney Floor and Ceiling Plates, made to the standards of all Keeney Products.

THE KEENEY MFG. CO., Newington, Conn.

New PROFITS



from old customers



It's simple arithmetic:

One product, one profit
Two products, two profits

Especially when that second product is one you can sell every month of the year, that you can sell to your present satisfied customers.

That's what the Permutit Water Softener line offers you. It gives you generous discounts—it is easy to install, and service is negligible.

Permutit will make money for you. And this can be proved to your satisfaction, from the current records of distributors. Send for the complete story.

Find out about water softening, and Permutit's merchandising plan and sales promotion materials. Some territories are still open — use this handy coupon for full particulars.

Permutit

Water Softeners

Domestic Sales Department, THE PERMUTIT CO.,
440 Fourth Avenue, New York City

Please rush complete particulars of your water softener proposition. Send full information, without obligation on my part.

Name _____

Address _____

Principal line _____

of the Missouri State Association of Master Plumbers, to be held in Kansas City, at the Muehlebach Hotel.

April 18 and 19, 1932—TEXAS—The annual convention of the Associated Master Plumbers of Texas, to be held in San Antonio, with headquarters at the Blue Bonnet Hotel.

April 18 and 19, 1932—WISCONSIN H. & P. C.—The annual convention of the Heating and Piping Contractors Wisconsin Association, to be held at Wisconsin Rapids.

April 22 and 23, 1932—LOUISIANA-MISSISSIPPI—The annual convention of the Louisiana-Mississippi Association of Plumbing and Heating Dealers, to be held at Mandeville, La., with headquarters at the St. Tammany Hotel.

April 25 and 26, 1932—GEORGIA—The annual convention of the Georgia State Association of Master Plumbers, to be held at Valdosta, Ga., with headquarters at the Gordon Hotel.

April 25 and 26, 1932—OKLAHOMA—The annual convention of the Oklahoma Master Plumbers Association, to be held at Enid, with headquarters at the Youngblood Hotel.

April 26, 1932—COLORADO—The annual convention of the Colorado Society of Sanitary and Heating Engineers, to be held at Denver, with headquarters at the Albany Hotel.

May 2 and 3, 1932—FLORIDA—The annual convention of the Florida State Association of Master Plumbers and Heating Dealers, to be held at Tampa.

May 2 and 3, 1932—TENNESSEE—The annual convention of the Associated Master Plumbers of Tennessee, to be held in Memphis, with headquarters at the Peabody Hotel.

May 9, 10 and 11, 1932—KENTUCKY—The annual convention of the Kentucky State Association of Master Plumbers, to be held at Frankfort.

May 9, 10 and 11, 1932—N. P. S. A.—The annual convention of the National Pipe and Supplies Association, to be held at Pittsburgh, Pa., with headquarters at the William Penn Hotel.

May 10 and 11, 1932—CONNECTICUT—The annual convention of the Connecticut Master Plumbers' Association, to be held at New Britain, with headquarters at the Hotel Burritt.

May 13 and 14, 1932—OREGON—The annual convention of the Oregon State Association of Master Plumbers, to be held in The Dalles, Ore.

May 16, 17 and 18, 1932—PENNSYLVANIA—The annual convention of the Pennsylvania State Association of Master Plumbers, to be held in Wilkes-Barre, with headquarters at the Mallow-Sterling Hotel.

May 16, 17 and 18, 1932—H. & P. C. N. A.—The 43rd annual convention of the Heating and Piping Contractors National Association, to be held at Detroit, Mich., with headquarters at the Book-Cadillac Hotel.

May 23, 24 and 25, 1932—CALIFORNIA—The 31st annual convention of the State Association of Master Plumbers of California, to be held at the Leamington Hotel, Oakland.

May 24 and 25, 1932—NEW JERSEY—The annual convention of the New Jersey Master Plumbers Association, to be held at Bon Air Lodge, Lake Hopatcong, N. J.

June 2 and 3, 1932—VIRGINIA—The annual convention of the Virginia Associated Plumbing and Heating Contractors, to be held at Alexandria, with headquarters at the George Mason Hotel.

June 14-27, 1932—N. D. H. A.—The annual convention of the National District Heating Association, to be held in Pittsburgh, Pa., with headquarters at the William Penn Hotel.

June 21, 22 and 23, 1932—N. A. M. P.—The 50th annual convention of the National Association of Master Plumbers, to be held in New York City, with headquarters at the Hotel Pennsylvania.

June 26-30, 1932—A. S. H. V. E.—The semi-annual meeting of the American Society of Heating and Ventilating Engineers, to be held in Milwaukee, Wis.

COMING TRADE EVENTS

April 5, 1932—Annual joint dinner of Massachusetts State Association of Master Plumbers and Massachusetts Sanitary Club, to be held at the Statler Hotel, Boston.

April 7, 1932—The 59th anniversary dinner-dance of the Master Plumbers Association of the District of Columbia, to be held at the Shoreham Hotel, Washington, D. C.

May 14, 1932—The 50th Anniversary celebration dinner-dance of the Plumbing Contractors' Association of Chicago, to be held at the Congress Hotel.

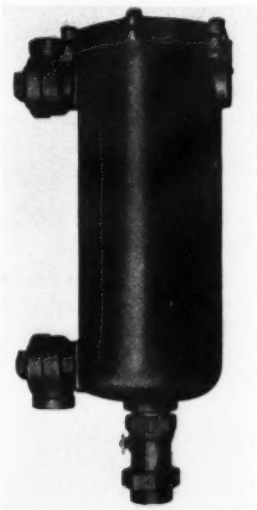
June 20, 21, 22 and 23, 1932—Exposition of plumbing, heating and allied products, in connection with the 50th annual convention of the National Association of Master Plumbers in Madison Square Garden, New York City.

ITEMS FOR STORE, SHOP AND JOB

IT IS just as important to know what to select in the way of items for the store, shop and job as it is to know how to install. Also the test of new and improved products is found both in the needs which they fill and in the purposes which they accomplish. The items for these columns are chosen with these considerations in mind so that the contractor may be assisted in his selections.

THERMOSTATIC DEVICE FOR CONTROLLING STORAGE TANK TEMPERATURES

Since the first of the year, a device has been placed on the market which has been designed mainly to control storage tank temperatures although it is described as having other applications. The illustration shows it as the item connected to the top of the indirect water heater. The device is considered of special interest to those located in districts where water is hard. The idea is that it will keep the temperature of the water down below the point where precipitation of lime occurs. It is made in 1½-in. and 2-in. sizes. The small dial seen on the left side of the item is rotated to regulate a thermostatic mechanism which in turn is actuated by the temperature of the water flowing through the indirect heater. As the temperature of this water increases, the thermostatic mechanism operates to close a valve in the line, thus reducing the flow of boiler water and the heating of the domestic water supply passing through the heater coil. The manufacturer is Bell & Gossett Company of Chicago.

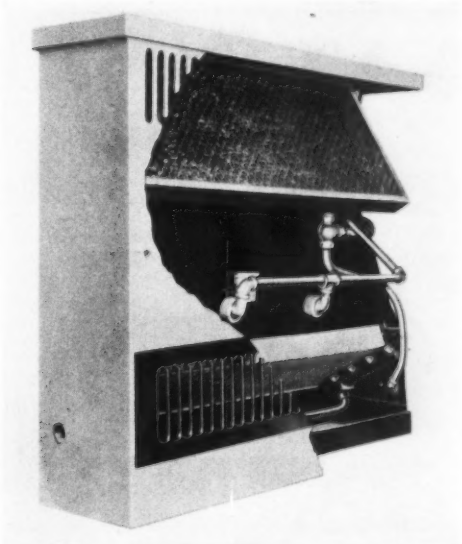


The thermostatic device is shown connected to the bottom of the indirect water heater

HUMIDIFIER FOR OPERATION WITH RADIATOR SYSTEM

The humidifier shown in the following illustration is of the cabinet type for use in homes. It has been placed on the market and is for use in connection with radiator systems of heating. Using the same supply and return lines already available for the existing heating system, the cabinet is installed as a radiator.

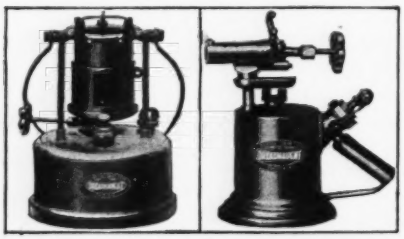
Air from the room is drawn in through a grill in the lower part of the cabinet and passes over a heating coil connected to the house heating system. This heated air then moves upward into the upper portion of the cabinet where it is humidified by contact with a spray from a nozzle causing a mist. The humidified air then passes through a filter and thence into the room.



The basement model is of the floor type and is

Readers will find in this department news of our industry's progress in the manufacture of equipment. You can read of the efforts of manufacturers to develop products which will increase customer demand, will make shop methods more efficient and will simplify installation.

A NEW LINE..
of WALL products
at a NEW LOW PRICE



Write for complete information. Ask for our plumbers' circular.

THOUGH lower in price than ever before, each is a newly developed WALL product designed to serve best your most particular needs, without the sacrifice of typical WALL quality features! It will pay you to get in touch with your jobber at once—or for jobbers to get in touch with us.

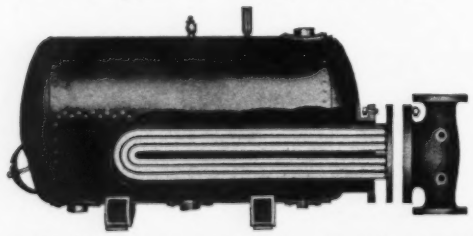
P. Wall Mfg. Supply Company · Pittsburgh, Pa.

SINCE WALL SUPERIOR PRODUCTS 1864

DREADNAUGHT
"Service with Safety"
BLOW TORCHES . . . FURNACES AND OILERS

NATIONAL
Red Head
STORAGE HEATERS

For Industrial Plants, Laundries, Apartments, Schools, Clubs, Hotels, etc.



A well built heater, economical in operation, equipped with U-Bend heating element of Anaconda Copper, Steel Tank. Improved flanged T cover gives unrestricted flow area for entering steam. Tested to 100 lb. working pressure, 150 lb. hydrostatic pressure. Just consult the chart in Bulletin 68, sent on request. We do the engineering. Immediate delivery.

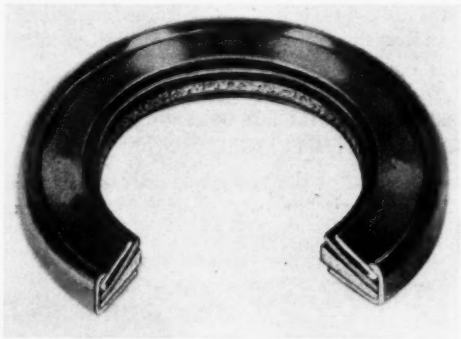
Makers of Heat Exchangers, Coolers, Oil Separators, Coils and Bends

THE NATIONAL PIPE BENDING CO.
Est. 1883
174-B River St., New Haven, Conn.
BOSTON NEW YORK PHILADELPHIA

suspended from the basement ceiling with only a grill in the floor exposed in the upstairs quarters. This unit may be used with either gravity or fan circulation. It is stated that approximately 2½ gallons of water per hour are used by either model. Of this amount, about ¾ gallon is actually evaporated. Humidity regulation is obtained by controlling the water supply through a hand valve or automatically by a hygrostat. Carrier Research Laboratories of Newark, N. J., announced the development.

SEAL DESIGNED TO HOLD OIL AND GREASE

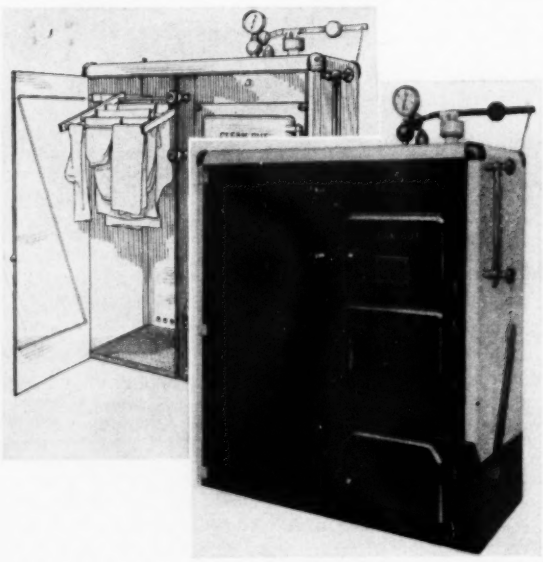
An announcement has been made of a seal which is designed to hold oil in pump and other bearings. An-



other feature of the seal is that it is made to hold oil on one side and liquids, including gasoline, on the other side. The Aetna Ball Bearing Manufacturing Company of Chicago is the maker.

A CLOTHES DRYER AUXILIARY TO HEATING BOILER

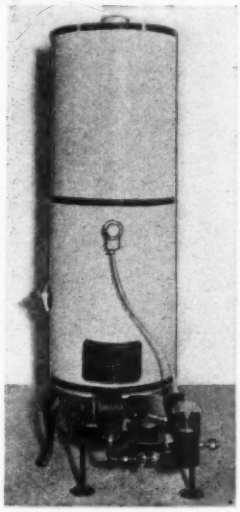
A clothes dryer has been built into a heating boiler of the square jacketed type for use in homes. The purpose of it is to provide an auxiliary clothes dryer for the average family where they have day-to-day washing to dry and particularly where there are small children.



Announcement of this has just been made. The equivalent clothes line capacity is listed as ranging from 7 to 16 ft. with a drying time of about 1½ hours for the average small wash. In effect, the item is an extension of the jacket on the boiler with a door making it a tight compartment wherein clothes may be dried. It has been placed on the market by Richardson & Boynton Company of New York City.

WATER HEATER IS OPERATED WITH OIL

An oil burning water heater has just recently been placed on the market. According to information received, the burner is a development from a larger domestic burner. Among the items listed in regard to the burner are: forced draft is used; the control of both high and low settings is positive and the fire burns in the presence of refractory material. As for the water heater itself, the tank is insulated with a rock wool jacket which is protected by an outer steel jacket and a large hand hole is provided for cleaning purposes when the heater is used where the liming of the water is apt to occur.



The item is manufactured by Bock Oil Burner Corporation, Madison, Wisconsin.

A BOILER DESIGNED FOR BURNING OIL

The illustration accompanying this item shows a cast iron boiler which has been designed exclusively for the burning of oil and which has just been placed on the market. The combustion chamber has been proportioned for the purpose of promoting complete combustion. The gas travel is four times the boiler's length. Back-firing is said to be overcome. Special plates are provided at front and rear for front and rear burner installations of the gun or rotary types. A special observation port door is included. Free and rapid internal circulation was designed for. Other features listed are: stack control; special tapping for external water heater; iron to iron construction and green enameled steel jacket with insulation. The manufacturer is the American Radiator Company, located in New York City.

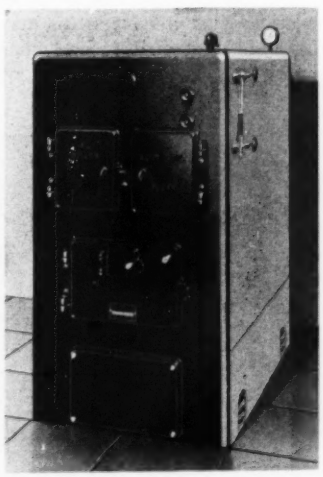


Fig. 19411 Taber Midget Sump Pump

It works . . . . . when needed most

After heavy rain-storms there is an increased demand for Taber automatic Midget Sump Pumps. Frequently they replace "low price" cellar drainers inadequately motored.

Why wait for a peak load to tell whether the pump will work? Avoid troublesome, profitless service calls . . . install Taber first. The owner of any sump pump expects "Dry Cellar Insurance." He gets it with a Taber Midget.

Bulletin and prices on request. Also see Page 923 Domestic Engineering Catalog.

TABER

TABER PUMP CO Est 1859

290 Elm Street, Buffalo, New York

STEEL IRON

CHALLENGE NIPPLES

BRASS COPPER

free sample

Send for one today. Compare it with any other. Point for point. Then you will know what's in a name and why you should buy Challenge at no greater cost.

FRICK-REID SUPPLY CORP.

NIPPLE DIVISION

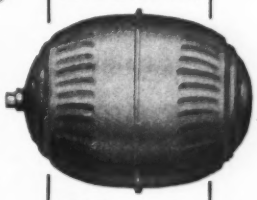
117 Sandusky St., N. S. Pittsburgh, Pa.

Built for Service

Federal

If the job you're after is one where Floats will get rough treatment, specify the Federal and you will find it stands up under the worst kind of service without any signs of weakening.

Federals are the logical choice for installation in schools, factories and all types of public buildings.



Floats

THE REICHERT FLOAT & MFG. CO.

2238 SMEAD AVE. TOLEDO, OHIO

YOU will have plumbing specialties in your shop so why not get the most complete and satisfactory line available.

Hindleys on your shelves eliminate the possibilities of any delay on the job.

See Hindleys in the Plumbing & Heating Catalog, page 851

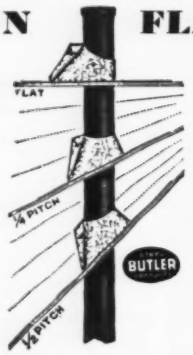
HINDLEY MFG. CO.

VALLEY FALLS - R. I.

OVERTON FLASHINGS

Contractors who are handling Overton Roof Flashings are finding that Roof Flashings can be sold by making calls in their territory

Check up on the Roof Flashings installed and suggest an Overton where a new one is necessary. Home owners are heeding the "Spend for the Home in 1932" movement. You should be profiting by their action.



BUTLER MFG. CO. Minneapolis, Minn.

"ACME" HANDIPAK . . . .

A washer for nearly every purpose

ACME Bibb Washers are new from the time they are placed in your hands until you are ready to use them on the job. They come to you packed 100 in a screw top can, keeping the washers always new. Your jobber carries them.

The name "ACME" is stamped on every washer

LAVELLE RUBBER CO. 320 W. ILLINOIS STREET CHICAGO, ILLINOIS

MORE VALUE FOR YOUR CUSTOMER SPELLS MORE PROFIT FOR YOU!

It's *extra* VALUE that closes sales these days. That's why you make more profit with F-M Home Water Systems. You get the business—because you offer your customer more for his money. Take the 210 gallon system, for example; complete; fully automatic; self-oiling; precision built—and guaranteed by Fairbanks-Morse, a name your customer knows. Write today for details about our franchise giving exclusive territory.

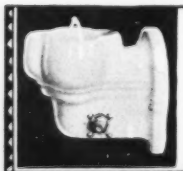
Here's a home water system you can sell now—was $75, now only

$66

(Cash f. o. b. factory for 210 gallons per hour size . . . complete.)

FAIRBANKS, MORSE & CO., Dept. I-4, 900 S. Wabash Ave., Chicago

FAIRBANKS-MORSE Home Light and Water Systems



The Choice of Plumbing Contractors Who Play Safe, for schools, office buildings, etc.

HALSEY TAYLOR

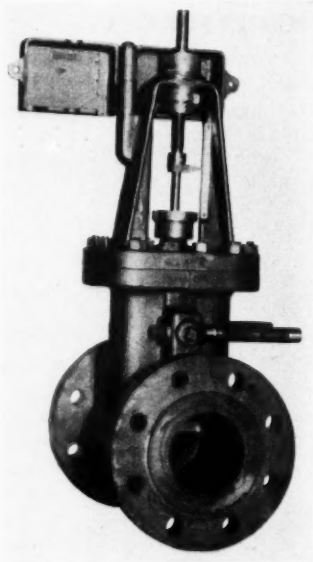
DRINKING FOUNTAINS

Two stream projector and practical automatic stream control

THE HALSEY W. TAYLOR CO., WARREN, O.

AN ADJUSTABLE ORIFICE FOR FLUID METERING

The accompanying illustration shows an item for fluid meter installations which has been designed to provide accurate measurements over a wide range of capacities. It is described as particularly suitable for use with meters measuring gas or low pressure heating steam since on these services the desired capacity is often dependent upon the season. It can be installed in a steam, water or gas line and connected to any differential head type of fluid meter. A micrometer adjusting screw is designed to permit setting the height of the gate segment within 0.001 of an inch. When it is advisable to change the capacity of the meter, it is necessary to set the micrometer screw at the reading corresponding to the desired maximum capacity, as obtained from curve sheets furnished with the orifice. The adjustable orifice permits changing the maximum capacity of the meter as much as 40 to 1. The change may be made without disrupting the meter operation or diverting the flow through a by-pass line. The item is new and recently was placed on the market by the manufacturer, Bailey Meter Company of Cleveland.



A WATER CLOSET BOWL WITH OVERFLOW

The overflow feature of the water closet shown in the accompanying illustration is a new development in these fixtures which just recently has been announced. The reason in back of it is to prevent siphonage of the bowl's contents into the water supply line in the event of a stoppage. The overflow is located below the flushing rim so as to prevent the water in the bowl from rising to that level. The John Douglas Co. of Cincinnati, Ohio, is the manufacturer.

WHAT WOMEN ARE DOING

BY DOROTHY EDWARDS

MINNEAPOLIS STARTS DRIVE FOR AUXILIARY FUND

At a recent monthly meeting of the Women's Auxiliary to the Minneapolis, Minn., Master Plumbers Association steps were taken to raise money to help carry on the work of the auxiliary. A number of novel ideas were suggested for raising the needed money. The membership was divided into five groups and each division will adopt a plan for securing funds.

Plans were discussed for a luncheon-card party to be held on April 15. Mrs. A. G. Nelson was appointed chairman of the committee for this affair, with Mrs. L. O. Klopfer and Mrs. M. E. Elsen as her assistants.

Members of the auxiliary were entertained recently at a luncheon-bridge by Mrs. M. E. Elsen, Mrs. H. M. Porter, Mrs. B. D. Miars, Mrs. George Worthingham and Mrs. M. Jensen.

Several representatives from the auxiliary attended a recent meeting of the Federation of Women's Clubs, with which organization the Minneapolis auxiliary is affiliated. As a result of this meeting, the Minneapolis auxiliary will donate $10 toward assisting high school children. Mrs. F. C. Stiller, president of the auxiliary, served on the Registration Committee at the recent two-day meeting of the Federation in Minneapolis.

BOSTON WOMEN PLAN INSTALLATION CEREMONY

The regular monthly meeting of the Women's Auxiliary of Boston, Mass., was held recently at the home of Mrs. Angelo Minella, at which time arrangements were made for the annual meeting and installation of officers. It was voted to have an outing with a shore dinner in June, at Salem Willows. The men joined in a social hour and delicious refreshments which concluded the evening's enjoyment.

ROCHESTER, N. Y., WOMEN PLAN TWO PARTIES

On March 9th, the Ladies Auxiliary of the Rochester Associated Master Plumbers held its monthly meeting in a parlor at the Sagamore hotel, Rochester, N. Y. Plans were made for a card party and luncheon to be held April 13. This is to take the place of the regular April meeting. On April 28, Mrs. John A. Bliss is giving a card party for members and friends, the proceeds to go toward the fund for prizes for card parties.

NEW OFFICERS ELECTED BY MANSFIELD AUXILIARY

The regular monthly meeting of the Mansfield, O., Women's Auxiliary was held recently at the home of Mrs. W. E. Antrican. The following officers were elected for the ensuing year: Mrs. Ruth Marlow, president; Mrs. Henry Denig, vice-president; Mrs. E. F. Malone, secretary-treasurer, and Mrs. C. W. Ricker, press reporter. A social hour and luncheon followed. Plans for a covered-dish dinner were made, to be held at the home of Mr. and Mrs. Frank Frietchen. A lovely dinner party was given recently by the men for the women.

MANY WOMEN PLAN TO ATTEND MISSOURI CONVENTION

Present indications are that a large number of women will gather at Kansas City, Mo., on April 18 and 19, for the annual convention of the Missouri auxiliary. The women's meeting will be held at the Muehlebach hotel in conjunction with that of the master plumbers. Mrs. Henderson is president of the Missouri Women's Auxiliary.

OAKLAND AUXILIARY INSTALLS 1932 OFFICERS

A gay luncheon and card party featured the January 18 meeting of the Oakland, Calif., auxiliary when the ladies gathered at Plumbers Hall to hold their annual installation ceremony, customarily held at the first meeting following the election of officers.

KANSAS AUXILIARY RE-ELECTS OFFICERS AT ANNUAL CONVENTION

The annual convention of the Women's Auxiliary to the Kansas State Association of Master Plumbers was held in McPherson, Kans., on March 18 and 19. All the officers were re-elected. They are: Mrs. J. M. Simmons, Wichita, president; Mrs. C. E. Wilkie, Hutchinson, first vice president; Mrs. B. A. Sutton, Iola, second vice president; Mrs. C. A. Powell, Manhattan, third vice president; Mrs. Roscoe Fairchild, Burlington, recording secretary; Mrs. Henry P. Dunaway, Wichita, corresponding secretary; Mrs. Kepple P. Sawyer, Hutchinson, treasurer, and Mrs. J. S. Merriman, Oakley, historian.

Left to right: Mrs. J. M. Simmons, Wichita, re-elected president of Kansas Auxiliary; Mrs. E. D. Hornbrook, Kansas City, Mo., past president of the National Auxiliary; Mrs. H. O. Green, Tulsa, Okla., National director; and Mrs. J. E. Lansdowne, Wichita

Past National President Mrs. E. D. Hornbrook of Kansas City, Mo., and National Director Mrs. H. O. Green of Tulsa, Okla., were honored guests. The entertainment included luncheons, a theater party and a dance.

Resolutions of thanks were extended to the hostesses, Mrs. E. L. Wolf and Mrs. W. R. Carlson, both of McPherson, for the splendid way they entertained the visitors.

ENJOYABLE PARTY HELD IN DENVER

The Ladies' Auxiliary of Denver, Colo., met recently at a local tea room, with Mrs. J. P. Brickey as hostess. A new member, Mrs. F. Kriedel, was initiated. Whist was

Sometimes **WE** *are surprised*

BUT we try not to show it... This time a husband said his wife was arriving in 10 minutes, and could we help him arrange a surprise dinner party for her? Here was a list of 12 guests... would we telephone them and "fix things up" while he dashed to meet his wife at the station? There were 14 at that dinner... and his wife *was* really surprised!

It's our belief that a hotel should do *more* than have large, airy rooms, comfortable beds, spacious closets. Beyond that, we daily try to meet the surprise situation *(without surprise)*, no matter what the guest wants.

Extra service at these 21

UNITED HOTELS

NEW YORK CITY'S *only United*.....The Roosevelt
PHILADELPHIA, PA.....The Benjamin Franklin
SEATTLE, WASH.....The Olympic
WORCESTER, MASS.....The Bancroft
NEWARK, N. J.....The Robert Treat
PATERSON, N. J.....The Alexander Hamilton
TRENTON, N. J.....The Stacy-Trent
HARRISBURG, PA.....The Penn-Harris
ALBANY, N. Y.....The Ten Eyck
SYRACUSE, N. Y.....The Onondaga
ROCHESTER, N. Y.....The Seneca
NIAGARA FALLS, N. Y.....The Niagara
ERIE, PA.....The Lawrence
AKRON, OHIO.....The Portage
FLINT, MICH.....The Durant
KANSAS CITY, MO.....The President
TUCSON, ARIZ.....El Conquistador
SHREVEPORT, LA.....The Washington-Youree
TORONTO, ONT.....The King Edward
NIAGARA FALLS, ONT.....The Clifton
WINDSOR, ONT.....The Prince Edward

UNITED HOTELS

played with honors going to Mrs. G. Stocking and Mrs. F. Kriedel. A St. Patrick's party was held at the home of Mr. and Mrs. V. A. Kiser, in honor of Mr. Kiser's birthday. A delicious dinner was served by the entertainment committee. Whist was played, honors going to Mrs. Stocking and Mrs. Cooper, Mr. Thurston and Mr. Demmer. Mr. Kiser was presented with a lovely radio lamp.

Among those present were Mr. and Mrs. Brickey, Mr. and Mrs. Bordeau, Mr. and Mrs. Clayton, Mr. and Mrs. Cooper, Mr. and Mrs. Demmer, Mr. and Mrs. Hensler, Mr. and Mrs. Kriedel, Mr. and Mrs. Laverty, Mr. and Mrs. Mellema, Mr. and Mrs. Stocking, Mr. and Mrs. Samson, Mr. and Mrs. Thurston, Mrs. Julia Hensler, Mr. Handorf, Mr. Adshade and Mr. and Mrs. Kiser.

NEW AUXILIARY ORGANIZED IN TOLEDO, OHIO

A new local chapter of the Women's Auxiliary has just been organized in Toledo, Ohio, which will meet monthly in connection with the Master Plumbers' Association. Mrs. Dan McDermid is president of the auxiliary, Mrs. Howard Baker, vice president, and Mrs. R. A. Behm, secretary-treasurer.

The Toledo Auxiliary held a card party on Washington's birthday. Mrs. Baker was chairman of the entertainment committee, and Mrs. Behm and Mrs. George Peters were hostesses.

ROCK ISLAND-MOLINE GROUPS ELECT OFFICERS

Mrs. Albert Rosenfield entertained the members of the Rock Island and Moline, Ill., auxiliary at her home recently. Since Mrs. C. C. Rosenfield, recently elected president of the group, was also elected state president at the recent convention, it was necessary to select a new local president. Mrs. P. H. Kale was given this honor.

The other officers of the local auxiliary are: Mrs. Albert Rosenfield, vice president; Mrs. E. L. Householder, recording secretary; Mrs. M. L. McKay, corresponding secretary, and Miss Mildred Lamp, treasurer.

MANHATTAN WOMEN ORGANIZE AUXILIARY

The Manhattan chapter of the Ladies Auxiliary was officially formed at a meeting on March 7 in New York City. Mrs. Herbert Halloran was elected president, Mrs. T. P. McLoughlin, vice president, Mrs. Grace L. O'Callahan, secretary, and Mrs. Fred Miller, treasurer.

NEW OFFICERS ELECTED BY CHICAGO GROUP

The Chicago Mid-West Auxiliary gave a dinner party recently at the Grasmere hotel. Husbands were the guests of the evening. The evening was spent playing cards, and each man was presented with a deck of cards as a souvenir.

At the last regular meeting held at the Gramere, the following officers were elected: president, Mrs. Henry Swade; vice-president, Mrs. M. Gallagher; secretary, Mrs. J. McKenzie; treasurer, Mrs. J. Happ.

ENTERTAINS INDIANAPOLIS WOMEN

The members of the Women's Auxiliary of Indianapolis, Ind., were entertained at the home of Mrs. James Kregelo at the regular February meeting. A number of former members were also present. Following the dispensation of business, Mesdames G. T. Watson and J. Lauber were pleasantly surprised with a handkerchief shower in celebration of their recent birthdays. Each member brought a covered dish and a delightful luncheon was enjoyed. An enjoyable afternoon was spent at cards and bunco.

NORTH HUDSON AUXILIARY HOLDS OLD-FASHIONED BARN DANCE

The Women's Auxiliary and the Master Plumbers' Association of North Hudson, N. J., enjoyed an old-fashioned barn dance on a recent Saturday evening. The decorations lent a farm atmosphere to the place and added to the enjoyment of the two hundred people present. The impersonations of sheriff, jailer and marrying preacher by Messrs. John Botwinik, William Jacob and William Orriss, respectively, were unique. Messrs. Henry Bunker, Jr., Dan Thurnau and Nick Triani were in charge of the food.

Mrs. Leslie Williams of Orange was awarded the prize for the most attractive costume and Fred Lang, the prize for the most comical costume, Patsy Dunn, Mrs. Henry Bunker, Jr., George Buess and Miss Alice Jacob were others who received prizes.

The committee who made the arrangements for this enjoyable evening included Mr. Dan Thurnau and Mrs. William Jacob, co-chairmen, assisted by Mesdames Thurnau and Orriss, Messrs. Da Prato and Jacob, Mr. and Mrs. N. Triani, Mr. and Mrs. E. Wittreich, Mr. and Mrs. C. Werner and Mr. and Mrs. F. Baker.

ENTERTAINS ST. LOUIS AUXILIARY

The Women's Auxiliary to the Contracting Plumbers Association of St. Louis, Mo., recently held a successful bridge and luncheon at the home of Mrs. D. E. Hannegan, treasurer of the organization. Mrs. Hannegan was assisted by Mrs. H. J. Mersmann, local secretary, who proved to be an efficient assistant. A delightful luncheon was served to 60 ladies and a pleasant afternoon was enjoyed by all.

ST. LOUIS AUXILIARY ELECTS NEW OFFICERS

Members of the St. Louis, Mo., auxiliary were entertained recently at the Statler hotel with a delightful luncheon. Mrs. R. Roos and Mrs. H. Bartosch, accompanied by Henry Bartosch, Jr., rendered several musical numbers.

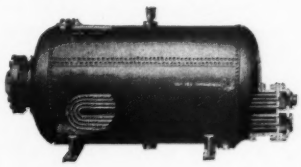
The following officers were elected for the ensuing year: Mrs. J. Els, president; Mrs. J. Fowler, vice-president; Mrs. H. Mersman, secretary; Mrs. D. Hannegan, treasurer, and Mrs. G. Suda, sergeant-at-arms. The retiring officers received gifts from the members of the auxiliary as a token of appreciation. Mrs. Els, the new president, made the following appointments: Mrs. H. Ryfell, chaplain; Mrs. H. Bartosch, chairman, ways and means committee; Mrs. R. Roos, chairman, membership committee, and Mrs. E. E. Manahan, publicity committee.

NORTH SHORE AUXILIARY MEMBERS ENTERTAINED

The February meeting of the Women's Auxiliary to the North Shore Plumbing Contractors' Association of Chicago was held at the home of Mrs. George A. Kearney. Mrs. Kearney served refreshments preceding the business meeting. Honors at cards went to Mesdames Steffens, McArthur, Chester and Schmeisser.

On January 30, forty members and guests of the auxiliary were entertained at the home of Mr. and Mrs. Hagen. Mrs. McKenna, retiring secretary, was given a lovely black silk bag by the members. Bridge, five hundred and bunco were enjoyed, with honors going to Mesdames Steffens, Chester, Schmeisser and Kearney, Messrs. H. Moore, G. Moore, Fladder and Parker, Miss Schmeisser, Mr. and Mrs. Killian, Mr. and Mrs. Norman and Mr. and Mrs. Krejci.

Puts Old Man Corrosion and Red Water Out of Business



Rust is a merciless, persistent fighter. It quickly eats holes in ordinary heaters. It causes red water, which stains sinks and bathtubs and also stains clothes in the laundry.

Patterson Indestructo *Copper Lined* Heaters cannot rust because they are lined throughout with a heavy copper shell. Are practically everlasting. We guarantee these heaters to be rustproof.

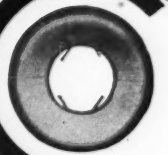
Patterson Copper Lined Heaters installed more than a quarter of a century show no deterioration.

Patterson Indestructo Catalog sent on request.

THE PATTERSON-KELLEY CO.
106 East 40th St. - - New York, N. Y.

Patterson INDESTRUCTO COPPER LINED
Hot Water Heater

PERFECTION
FLOOR and CEILING PLATES



The ease with which PERFECTION Floor and Ceiling Plates can be installed will make them favorites with you.

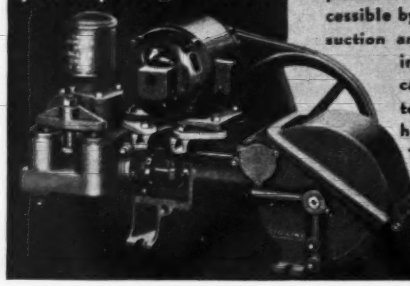
Once you have snapped them on the pipe, they'll hold snug always.

It is best to stock up with them so that you can have them at a moment's notice without delay.

Ask your jobber to supply them to you.

The BEATON & CADWELL MFG. CO.
Established 1894
NEW BRITAIN, CONN.

DEMING
"OIL-RITE"
SHALLOW WELL
pumping UNIT



COMPARE!

Helical cut gears, Timken roller bearings, stainless steel piston rod, suction valves accessible by removing one nut, suction and discharge openings on end of pump, capacities from 550 to 4800 gallons per hour.

THE DEMING CO.
Est. 1880
Salem, Ohio

4"x5" Oval Float

NO-SOL COPPER FLOATS

No-Sol Floats incorporate all features necessary to the satisfactory performance of a tank float.

Each float is individually tested and guaranteed.

INCORPORATED 1907

The AYLING & REICHERT CO.
3047 N. Erie St. Toledo, Ohio

5" Round Float

E-Z

Radiator Hangers

You can hang radiators quickly, securely and without trouble with E-Z Hangers. Recommended by leading architects and contractors. Fully adjustable both horizontally and vertically. Three styles meet ALL conditions. Write for full information.

HEALY-RUFF CO.
770 Hampden Ave., St. Paul, Minn.

Use E-Z Inserts and E-Z Lavatory Hangers

Style "C"

Stop pipe thread leaks with SMOOTH-ON No.1 in a

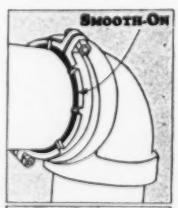
SMOOTH-ON CLAMP

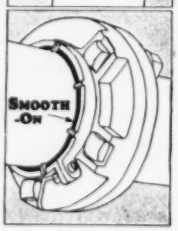
Sizes for 1-in. to 12-in. pipe

QUICK, easy, cheap and dependable. Holds for the life of the line—steam, hot or cold water, gas etc., any pressure, any temperature, iron, brass, or copper pipe. No interference with bolt heads or nuts of flanged joints. Get Smooth-On Clamps and Smooth-On No. 1 from nearest supply house or from us.

Write for the free Smooth-On Handbook.

SMOOTH-ON MFG. CO.
Dept. 12, 574 Communipaw Ave.
Jersey City, N. J.





New Trade Literature

Catalog of Drop-Forgings and Drop-Forged Tools

J. H. Williams & Co. of New York City have issued the 21st edition of their catalog, a neat volume of 216 pages. This catalog lists all the recent additions to this company's line of drop-forgings and drop-forged tools, among them several new wrenches and chain pipe tongs. The book is copiously illustrated and its value is greatly enhanced by the addition of many tables of capacities and dimensions.

Automatic Home Heating

Domestic Stoker Company of New York City has issued a folder, 4 pages, 8¼ x 11 in., illustrating and describing its automatic home heating system, which is designed to maintain a healthful, even temperature regardless of weather conditions. Among the features emphasized are: Thermostat control, fuel economy, heat as needed, scientific combustion, revolving fire-pot, dustless filling and automatic ash removal.

Catalog of Cast Iron Fittings

Kuhns Bros. Co. of Dayton, Ohio, has issued a 98-page catalog, 5½ x 8½ in., listing and illustrating its products, including standard and extra heavy cast iron screwed fittings, long turn cast iron screwed fittings, American standard sprinkler fittings, companion flanges, special flanged short turn fittings, standard cast iron flanged fittings, templates for drilling flanges and flanged fittings. The standard fittings are made for steam working pressure up to 125 lb. and water working pressure up to 175 lb., while the extra heavy fittings are made for steam working pressure higher than 125 lb. and up to 250 lb. Innumerable tables of dimensions and weights make this catalog valuable and convenient for reference.

Catalog of Gas-Fired Boilers

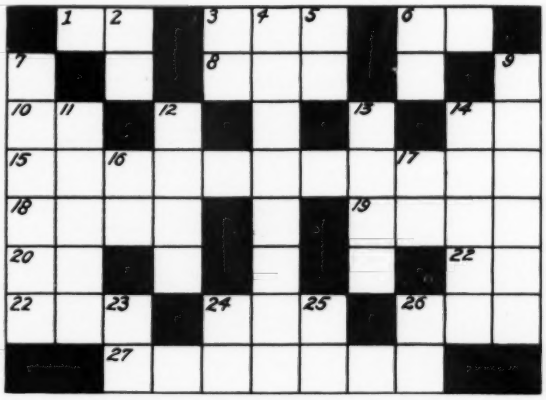
Dunkirk Radiator Corporation, Dunkirk, N. Y., has issued a catalog of gas-fired boilers, consisting of 12 pages, 9 x 11 in., and describing and illustrating this concern's gas boilers, which have been tested and approved by the American Gas Association Laboratories. Among the features stressed about the construction of these boilers are the following: "Staggered fire travel, insuring full utilization of heat produced by the gas flames. Freedom from priming or surging, providing a steady water line at all times. Sections easily cleaned. Burners, air shutters and valves readily removed and replaced. Air control door easily removed for inspection or adjustment of valves." The value of the catalog is enhanced by the addition of tables of boiler data and ratings, available Btu. and shipping weights.

The Petroleum Heat and Power Co.'s Catalog

Petroleum Heat & Power Company of Stamford, Conn., has issued a 24-page catalog, 8 x 11 in., which describes and illustrates in detail its oil burners and oil burning systems. Special attention is called to one of its burners of the air turbine-driven cup type, whose construction and operation is described, in part, as follows: Small number of parts, sturdy construction and precise manufacture, which make for long life and low maintenance cost; burns any grade of fuel oil, has central source of motive power, economical operation, electric, belt or gasoline engine drive; duplicate fan and pump units, which eliminate danger of shutdowns, and it has positive control of air and oil mixtures by adjustable vane air register and steam pressure oil regulators. This catalog is printed in two colors, black and orange, and is a neat sample of the modern printer's art. It will no doubt be a valuable addition to many a trade library about heating.

Pipe —— Lines

Connected by LYT



Here's another treat for the crossword puzzle fans which will test their knowledge of plumbing and heating. It comes from Ed Bosak of Crete, Nebr., and he has cleverly managed to work in the name of the leading business paper in the industry. We invite all readers of "Pipe Lines" to participate in its solution, which will be published in a later issue. Send your entry in early.

Solutions to the puzzle which appeared February 6 are still arriving. We want particularly to acknowledge the solution and letter from B. Sherman of Providence, R. I.

Horizontal

1. Towards.
3. Bustle; stir.
6. Abbr. for "that is."
8. What one must do before he can reap.
10. A perscnal pronoun denoting a plumber.
14. Thus.
15. Last half of the trade's best magazine.
18. Paradise.
19. Old spelling of "enough."
20. That which denotes an infinitive.
21. Us plumbers.
22. A well-known brand of paint (abbr.).
25. A tool used for flanging lead pipe.
26. The name of the letter S.
27. A room of the house where good plumbing is essential.

Vertical

2. Upcn.
3. Equal to.
4. First half of 15 horizontal.
5. What a plumber says when he hits his finger.
6. In case that.
7. The way lead often comes.
9. What plumbers are sometimes called.
11. To enrich.
12. A fixture.
13. Iron pipe in the raw state (plural).
14. What it does in the winter time.
16. A make of motor used on some oil burners and stokers.
17. Not out.
23. Kind cf gum.
24. Measure of liquid (abbr.).
25. A New England state (abbr.).
26. Half of the width of an em.

HORATIO ALGER, JR.

An insurance agent secured admission to the office of a Big Business Man at the close of day.

"You ought to feel honored, highly honored, young man. Do you know that today I have refused to see seven insurance men?"

"Yes, sir, I know," said the agent, "I'm them."

THE INSERT

Sympathy

Lake: "We had burglars at our house last night."
Hake: "What did they take?"
Lake: "Nothing. They left a $5 bill on the kitchen table."

The Japanese who named Manchuria the land of peace must have had it confused with two other places.

LYT

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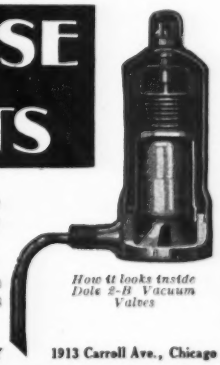

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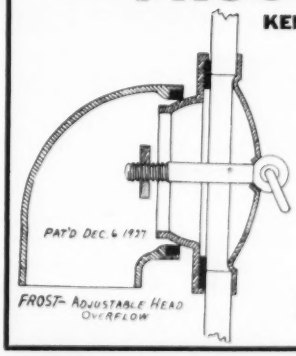
—FROST CO.—

KENOSHA, WIS.



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Johns-Manville *Low Pressure Insulation*

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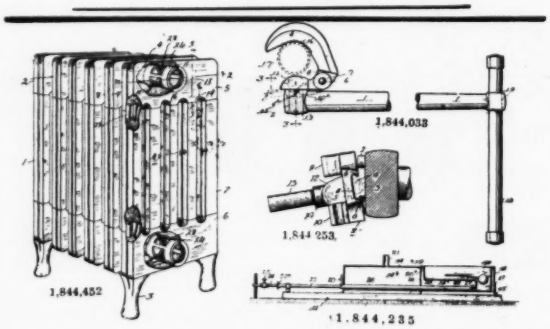
1,844,452. Radiator Construction. Earnest L. Watson, Milan, Mich.

1,844,033. Wrench. Louis A. Cornelius, Grand Rapids, Mich., assignor to Wolverine Brass Works, Grand Rapids, Mich., a corporation of Michigan.



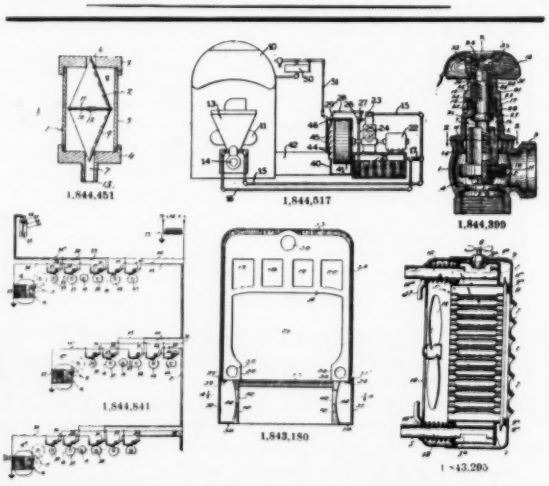
1,844, 253. Pipe Bender. Martin E. Johnson, Chicago, Ill., assignor of one-half to Ira J. Wilson, Winnetka, Ill.

1,844,235. Humidifying Apparatus. Frank A. Anetsberger and William Anetsberger, Chicago, Ill.

1,844,451. Air Vent for Steam Heating Systems. Earnest L. Watson, Milan, Mich.

1,844,517. Hydraulic Stoker Control. Dale O. Miller, Detroit, Mich.

1,844,399. Valve. Edward J. Kiley, Mansfield, Ohio, assignor to The Ohio Brass Company, Mansfield, Ohio, a corporation of New Jersey.



1,844,841. Heat Regulating and Air Conditioning System. Howard D. Colman, Rockford, Ill.

1,843,180. Boiler. William R. Stockwell, Michigan City, Ind., assignor to Weil-McLain Company, Michigan City, Ind., a corporation of Delaware.

1,843,295. Heater Assembly. James C. Nichols, Elgin, Ill.

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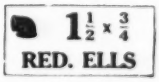

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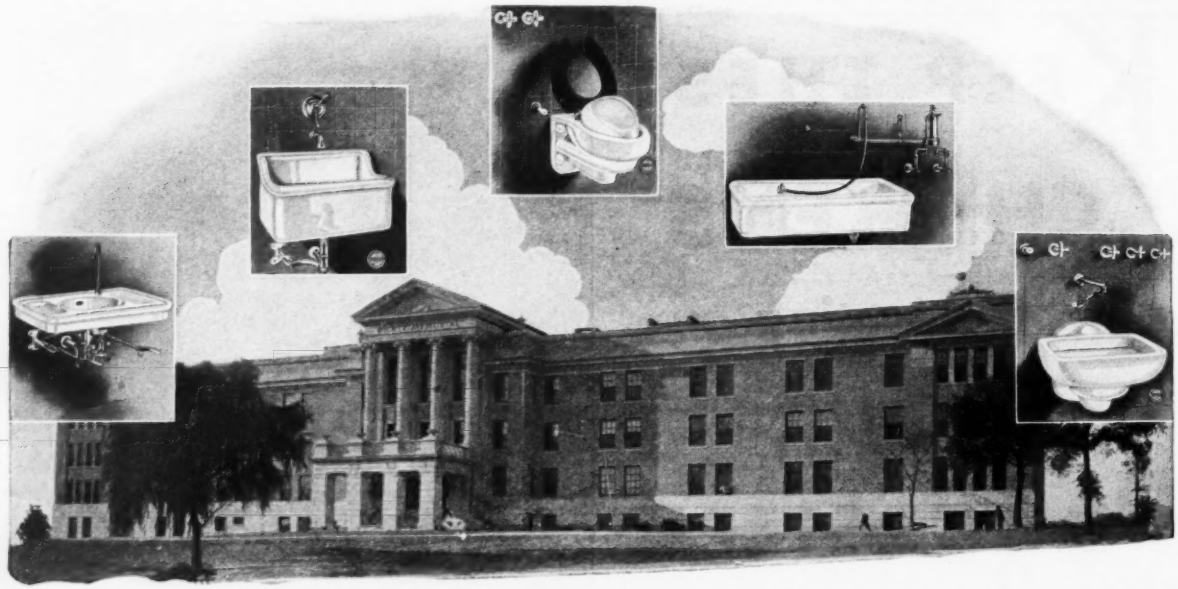

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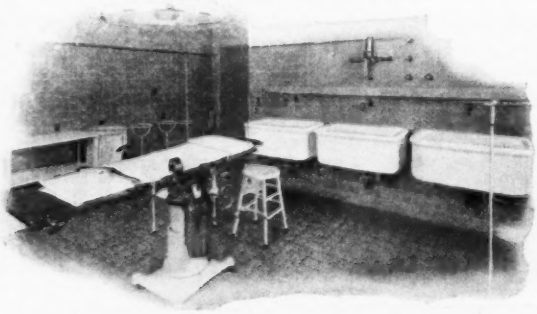

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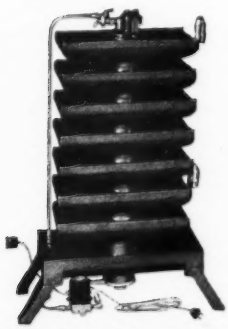

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Division of AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

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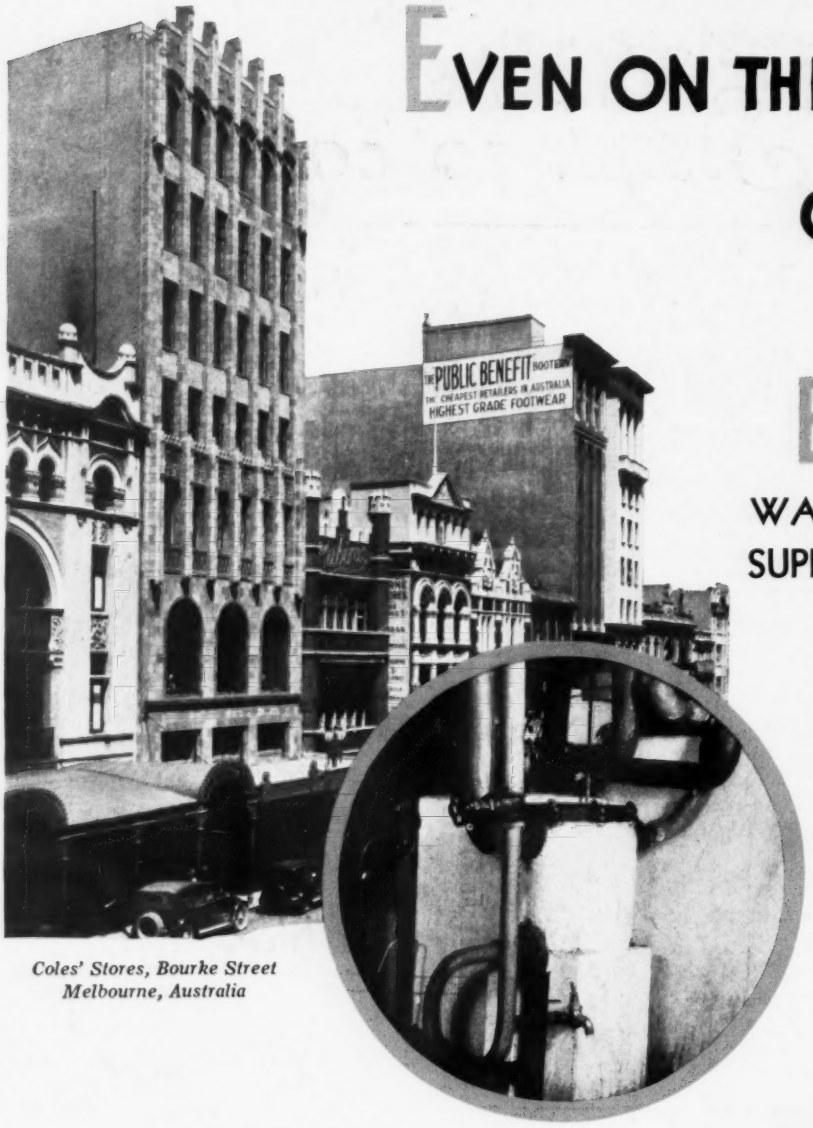

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Yours truly

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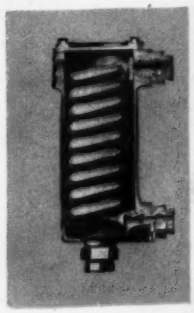

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